MASS. TC20.2: R765/2

U OF MASS./AMHERST LIBRARY

UMASS/AMHERST
312066 0278 1220 7

DRAFT

NEGATIVE

DECLARATION

GOVERNMENT DOCUMENTS
COLLECTION
SEP 1 1978

TRANSPORTATION IMPROVEMENTS TO ROUTE 57 SOUTHWICK - AGAWAM

U. S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
AND
MASSACHUSETTS DEPARTMENT OF PUBLIC WORKS

APRIL 1978

Digitized by the Internet Archive
in 2014

https://archive.org/details/route57fromroute00hwlo

ROUTE 57
From the Route 57 and Suffield Street Interchange
in Agawam to Hillside Road in Southwick
Hampden County

ADMINISTRATIVE ACTION
DRAFT NEGATIVE DECLARATION

UNITED STATES DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
and
THE COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF PUBLIC WORKS

Submitted pursuant to 42 U.S.C. 4332 (2) (C) and 23 U.S.C. 128(a)

April 13, 1978
Date Accepted for Review

Edwin P. Holahan
for Division Administrator
Federal Highway Administration

ACKNOWLEDGEMENTS

The Environmental Assessment was prepared under the direction and with the active involvement of the Massachusetts Department of Public Works and the U.S. Department of Transportation, Federal Highway Administration by the staff of H. W. Lochner, Inc., with the assistance of the following firms in the designated environmental fields:

Brandeis University/University of Connecticut	Archaeology
L. G. Copley Associates	Noise Impact
Resource Analysis, Inc.	Water Quality and Hydrological Flow

In addition, during the course of study, meetings and interviews were held with public officials and representatives of public and civic groups, as well as with private citizens. The cooperation of all is hereby gratefully acknowledged.

TABLE OF CONTENTS

	Page Number
SECTION I. INTRODUCTION	1
I.A. PROJECT BACKGROUND	1
I.B. NEED FOR IMPROVEMENT	2
I.C. PUBLIC PARTICIPATION	4
SECTION II. CULTURAL, SOCIAL AND ECONOMIC CONTEXT	7
II.A. REGIONAL AND COMMUNITY GROWTH	7
II.B. PROJECTED GROWTH	14
1. Single-family housing	14
2. Multi-family housing	14
3. Specific Proposals	14
4. Commercial Development	15
5. Industrial Development	16
6. Vacant Buildable Land	16
7. Public Facilities and Services	18
II.C. CONSERVATION AND PRESERVATION	19
1. Topography	19
2. Natural Environment	20
3. Wetlands	21
4. Recreational Areas	27
5. Section 4(f) Lands	28
SECTION III. ALTERNATIVES CONSIDERED	29
III.A. NO-BUILD ALTERNATIVE	29
III.B. UPGRADED EXISTING ROUTE ALTERNATIVE	31
III.C. PARTIAL ROUTE RELOCATION/SAFETY IMPROVEMENT ALTERNATIVE	33
III.D. ALTERNATIVE TRANSPORTATION MODES	35
SECTION IV. ENVIRONMENTAL ASSESSMENT OF THE PROPOSED PROJECT	37
IV.A. DESIGN FEATURES	37
1. Roadway Cross-Sections	37
2. Geometric Design Features	37
IV.B. TRAFFIC SERVICE AND SAFETY	39
1. Level of Service Concept	39
2. Existing Traffic Service Characteristics	41
3. Traffic Flow Volume Projections and Anaylsis	43
4. Safety	44

IV.C. SOCIAL AND ECONOMIC IMPACTS 46
1. Neighborhood Impacts 46
2. Agricultural Land Impacted 46
3. Impact on Pre-Historic Archaeological Resources 47
4. Economic Impacts 47

IV.D. IMPACTS TO AIR QUALITY 49
1. Air Quality Snyopsis 49
2. Construction Impact on Air Quality 53
3. Conclusion 54

IV.E. NOISE IMPACTS 55
1. Introduction 55
2. A-Weighted Noise Level (dBA) 55
3. Methodology 57
4. Calculated Traffic Noise Levels 57
5. Projected Noise at Estimated Time of Completion 59
6. Criteria for Noise Impact 60
7. Likely Traffic Noise Impacts 61
8. Traffic Noise Abatement 64
9. Construction Noise Abatement 65

IV.F. WATER QUALITY AND HYDROLOGY 66
1. Water Resource Areas Affected by Relocated Route 57 66
2. Water Quality Impacts 67
a. Runoff Quality Constituents 67
b. Assessment of Water Quality Impacts 69
c. Possible Measures to Minimize Runoff Pollutant Impacts 72
3. Erosion Control 72
4. Impacts on Streams and Wetlands 73
a. Hydrologic Design Considerations 73
b. Stream Crossings 75
c. Leonard Pond Wetland 75
d. Measures to Minimize Harm 78

IV.G. SECONDARY IMPACTS 78
1. Induced Development in Southwick 78
2. Traffic Impacts on South End Bridge 78

APPENDICES*
APPENDIX A CONCEPTUAL STAGE RELOCATION PLAN
APPENDIX B PUBLIC PARTICIPATION COMMENTS

* An Air and Noise Technical Appendix is available for review at the Massachusetts Department of Public Works, 100 Nashua Street, Boston, Massachusetts.

LIST OF FIGURES

Figure Number	Title	Following Page
1	Project Location Map	vii
2	Existing Roadway Network Project Study Area	2
3	Summary of Agawam Master Plan	14
4	Agawam Vacant Land Characteristics	18
5	Neighborhood and Community Facilities Inventory	18
6	Natural Resource Inventory	26
7	Design Control Features	28
8	Typical Sections - Existing Route and Upgraded Existing Route Alternatives	32
9	Upgraded Existing Route Alternative	32
10	Typical Sections - Partial Route Relocation Alternative	34
11	Partial Route Relocation Alternative	34
12	Level of Service Concept	40
13	1976-1995 Traffic Volumes - Upgraded Existing Route Alternative	44
14	1995 Traffic Volumes - Partial Route Relocation Alternative	44
15	Air Analysis Locations	54
16	Noise Scale	56
17	Upgrade Alternative: Noise Sampling Locations & Design Year Noise Contours	64
18	Partial Relocation Alternative: Noise Sampling Locations & Design Year Noise Contours	64

LIST OF TABLES

Table Number		Page No.
1	Population Growth Lower Pioneer Valley Region	8
2	Population: Age Composition, 1960-1970	9
3	Housing Unit Characteristics	10
4	Worker Transportation Characteristics	12
5	Physical Characteristics of Vacant Land	17
6	Geometric Design Features	38
7	Intersection Level of Service Analysis	42
8	Accident Involvement Rate	45
9	Total Vehicle Emissions	50
10	1-Hour Carbon Monoxide Concentrations	51
11	8-Hour Carbon Monoxide Concentrations	52
12	Measured and Calculated Traffic Noise Levels (1995)	58
13	Calculated Traffic Noise Levels: Existing and Estimated Time of Completion	59
14	FHWA Design Noise Levels	60
15	Potential Traffic Noise Impact Areas in Agawam	62
16	Potential Traffic Noise Impact Areas in Southwick	62
17	Potentially Noise-Impacted Residential Properties in Agawam	63
18	Potentially Noise-Impacted Residential Properties in Southwick	63
19	Locations of Potentially Noise-Impacted Residences Along Relocation Corridor	64
20	Reported Applied Salt Quantities	68
21	Average Annual Salt Concentrations	70
22	Average Annual Automobile Pollutant Concentrations	71

SUMMARY OF ANTICIPATED IMPACTS

I.A. ADMINISTRATIVE ACTION

Federal Highway Administration Negative Declaration

(x) Draft ( ) Final
( ) Section 4(f) Statement
( ) Section 106 Statement
( ) Technical Appendices (Separate document)

For additional information please contact:

STATE	FEDERAL
Mr. John F. Hurley	Mr. Norman J. VanNess
Environmental Engineer	Division Administrator
Bureau Project Development	U.S. Dept. Transportation
Mass. Dept. Public Works	Fed. Hwy. Administration
100 Nashua Street	Suite 1517, 100 Summer St.
Boston, Mass. 02114	Boston, Mass. 02110

I.B. PROPOSED ACTION

The proposed action is the relocation of Route 57 in Agawam from the Suffield Street Interchange to the Agawam/Southwick line. The proposed facility will be a divided four lane highway from Suffield Street to west of Westfield Street where the highway will merge to two lanes as it approaches Provin Mountain. The proposed action is approximately 4.5 miles long.

I.C. OBJECTIVES OF THE PROPOSED IMPROVEMENTS

The proposed action addresses a number of long-standing transportation objectives of improving access, reducing congestion and increasing safety for existing and projected traffic within Agawam.

By providing a more direct roadway with significantly better flow characteristics, the proposed improvements will also increase safety and access, reduce air and noise pollution in an area of strip residential and commercial development.

I.D. OTHER FEDERAL ACTIONS IN THE AREA

Agawam is the site of many past, present and proposed federal actions. There are none, however, that are directly related to the proposed action.

I. E. DESCRIPTION OF ALTERNATIVES

One No-Build Alternative, one Upgraded Existing Route Alternative and one Partial Route Relocation Alternative were evaluated. These alternatives were developed and selected through an open consultive planning process involving State, Regional and Town agencies and a series of public meetings

NO-BUILD

The road system would remain as it is today.

UPGRADED EXISTING ROUTE ALTERNATIVE

This alternative follows the existing Route 57 alignment for the full project length, but differs from the No-Build Alternative in that it makes provisions for capacity improvements which would handle the projected traffic flows. Improvements would consist mainly of roadway widening, traffic signals and signs, channelization, pavement markings and other similar traffic control devices. A roadway widening to a four-lane width would satisfy the capacity requirements, but would not eliminate the unrestricted access and safety problems inherent in the existing route. In addition, due to the highly urbanized nature of the existing corridor, it is not possible to widen the route sufficiently to include breakdown lanes without extensive property takings and major disruption of the community.

PARTIAL ROUTE RELOCATION ALTERNATIVE

This alternative would begin at Suffield Street where the existing interchange would be modified to provide for movements to and from the west, possibly by converting to a full diamond type interchange. For safety purposes, Route 57 would continue as a four lane divided highway, merging to a two lane access controlled roadway west of South Westfield Street. The relocated route would tie into existing Route 57 at the Provin Mountain gap near the Agawam-Southwick town line. This alignment, in addition to being access controlled throughout, would displace less than half the number of residences/businesses necessary under the Upgraded Existing Route Alternative.

I. F. IMPACTS

NO-BUILD

The impacts of the No-Build will be felt primarily through the continued congestion that currently prevails in the existing Route 57 environment, thereby creating excessive noise, air pollution and safety hazards.

UPGRADED EXISTING ROUTE ALTERNATIVE would not relieve the existing safety problems caused in part by the over 220 residential or commercial access curb cuts. All of these access points create potential traffic conflict situations.

PARTIAL ROUTE RELOCATION ALTERNATIVE will produce significant safety improvements in Agawam as existing Route 57 will now become a local collector-arterial street carrying much lower traffic volumes. This additional east-west facility will help accomodate the projected development for southwest Agawam.

Vegetation, wildlife, soils, groundwater, and surface water conditions in the area will not be altered significantly by the project. Air and noise conditions in the project area will not be significantly impacted.

In summary, the Partial Route Relocation Alternative is the preferred alternative. It is felt that construction of this alternative will have no significant effect on the human environment.

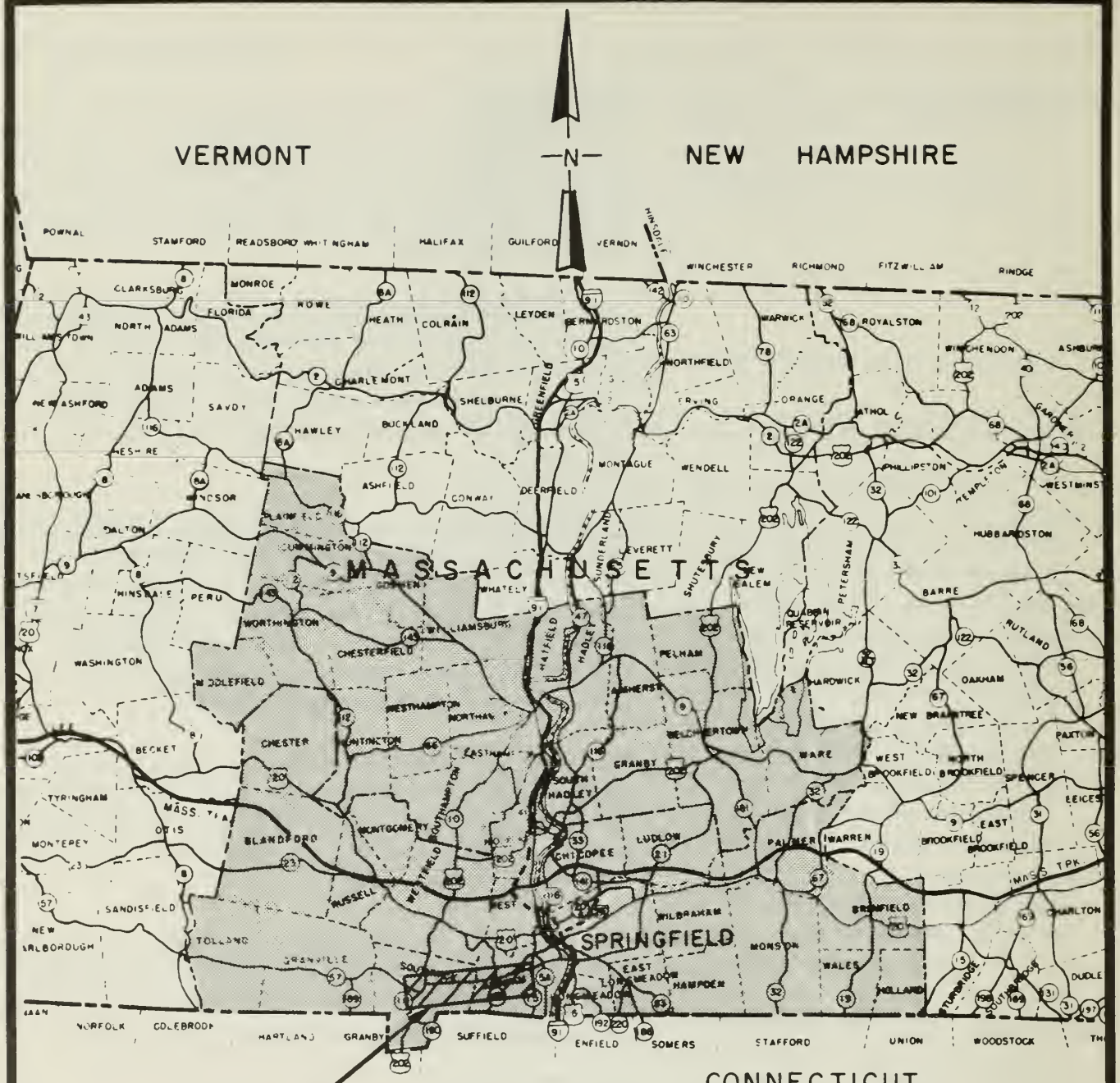

VERMONT
N
NEW HAMPSHIRE
MASSACHUSETTS
SPRINGFIELD
CONNECTICUT
PROJECT STUDY AREA
SCALE
0 5 10 15 20
MILES
- LOWER PIONEER VALLEY REGIONAL PLANNING DISTRICT
ROUTE 57
SOUTHWICK-AGAWAM
PROJECT LOCATION MAP

FIGURE 1

SECTION I
INTRODUCTION

1.A. PROJECT BACKGROUND

In 1959 relocated Route 57 was constructed as a limited access, six lane divided highway from U.S. Route 5 west to Main Street (Route 159) in Agawam where interchange access was provided to and from the east. One year later the route was extended as a limited access, four lane divided highway to Suffield Street (Route 75), where ramp access again was provided to and from the east. Subsequently, in 1962, Route 57 was extended some four thousand feet further to the west, as a two lane access controlled facility, to an at-grade connection with Mill Street. West of this point Route 57 remains in its original location and continues for some forty miles as a two-lane highway to its terminus at Route 23 in Monterey. Except for the recently completed portions, Route 57 has no access control, with at-grade cross-street intersections and numerous driveways throughout the project study area. (See Figure 2 - Existing Roadway Network, Project Study Area).

A Location Study was completed in 1971 to determine the most feasible location for continuing the relocation of Route 57 from Suffield Street in Agawam to Hillside Road in Southwick. Some environmental analysis was conducted in 1971-1972 in support of the Location Study's two most feasible alternatives. Due to adverse environmental impacts and sporadic community support, the project lacked impetus until February 26, 1974 when a public informational meeting was held. The overwhelming concern for the project was mainifested by the number of attendees and the supportive petitions presented. The meeting clearly indicated that Agawam would favor actions taken to relieve the existing traffic conditions on Route 57, while Southwick would reserve judgement on any proposals, except for the full route relocation alternative to which it remained vehemently opposed.

The current Environmental/Engineering Study was initiated in August, 1976. During the early phases of the study work it was determined that the projected traffic volumes and growth factors for the Route 57 corridor indicate a need for major upgrading of the existing road or full route relocation through Agawam, but the projected traffic volumes are not high enough to justify a route relocation in Southwick. As a result the study has concentrated on three basic alternatives: 1) No Build, 2) Upgraded Existing Route through Agawam-Southwick, and 3) Relocated Route through Agawam in combination with spot safety improvements through Southwick. Alternatives of full route relocation in Southwick were not considered in this current study.

I. B. NEED FOR IMPROVEMENT

The purpose of this Environmental/Engineering Impact Study is to review past planning studies, analyze present growth in the Agawam-Southwick area, and to define the overall east-west transportation system requirements which would be consistent with a sustainable and environmentally sound level of development.

The current situation, projected growth, and the need to respond are highlighted by the following issues:

- Some peak hour capacity deficiencies currently exist at several intersections in Agawam. Projected traffic volumes will exceed the capacity of the present roadway in Agawam.

- Travel times and delays at intersections will continue to increase as traffic volumes increase intensifying inherent safety problems.

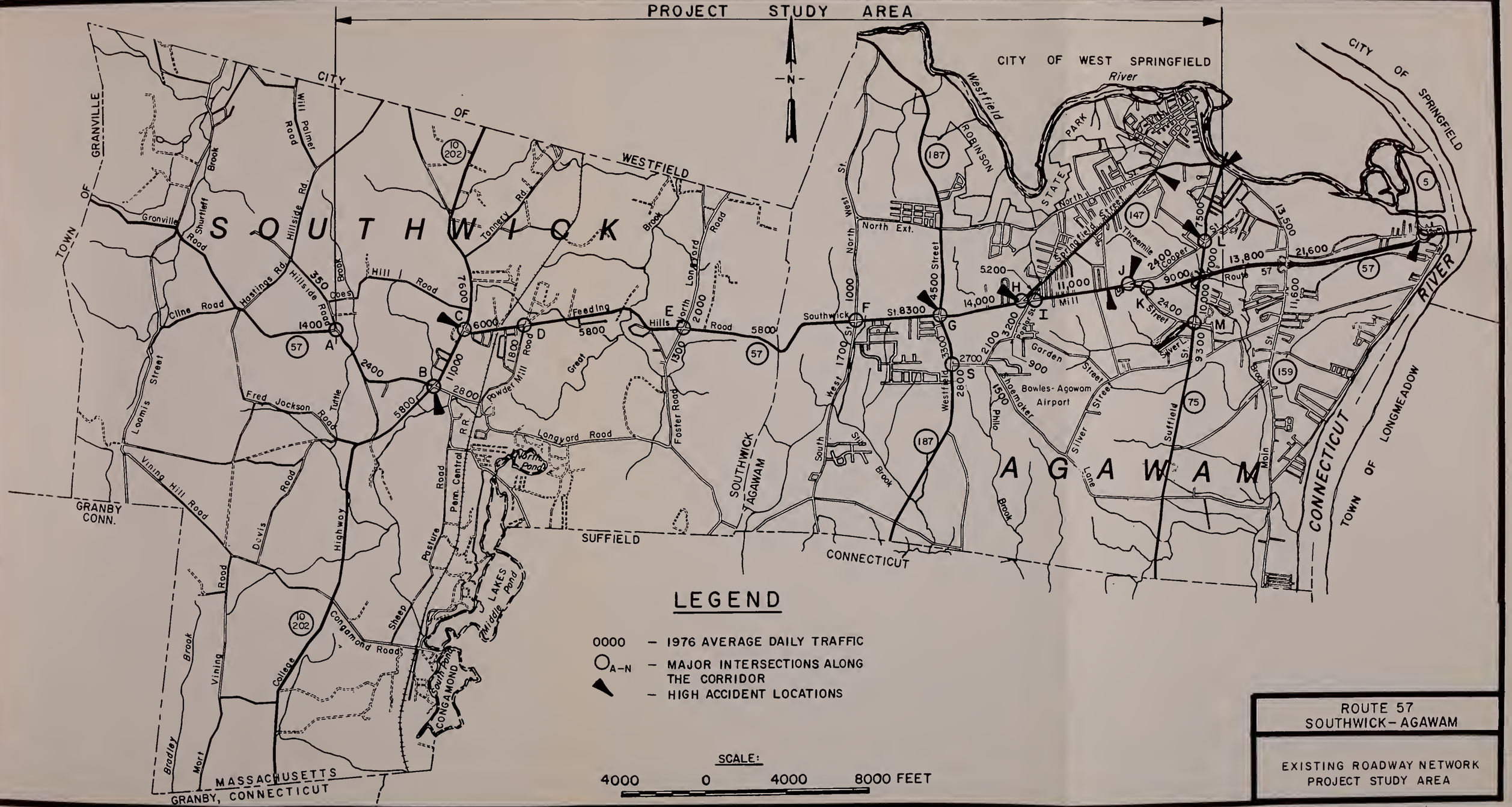
- Accident rates on existing Route 57 east of Westfield Street are approximately double the statewide average for similar roads.

- The land adjacent to the existing route is almost totally urbanized with residential, commercial and institutional development extending to west of West Street.

- 19 local streets intersect or tie-in to Route 57 on the north side of the route, 12 streets intersect or tie-in on the south side. Over 220 curb cuts for residential or commercial driveway access occur on the existing route. All of these access points create potential traffic conflict situations.

- Agawam High School, Agawam Junior High School and Sacred Heart Church and School are located along the existing route with resulting School Zone speed restrictions and pedestrian conflicts.

- Development in the area, particularly in southwest Agawam, is increasing with further reliance on Route 57. This combined with the projected residential and commercial growth for southwest Agawam indicates the potential need for a second east-west transportation corridor in this area.


PROJECT STUDY AREA
N
CITY OF WEST SPRINGFIELD
CITY OF SPRINGFIELD
TOWN OF GRANVILLE
CITY OF WESTFIELD
SOUTHWICK
AGAWAM
GRANBY CONN.
SUFFIELD
CONNECTICUT
TOWN OF LONGMEADOW
MASSACHUSETTS
GRANBY, CONNECTICUT
Westfield River
CONNECTICUT RIVER
Granville Road
Shurtleff Brook
Will Palmer Road
Hillside Rd.
Tannery Rd.
Hill Road
Cline Road
Hastings Rd.
Hillside Road
Loomis Street
Fred Jackson Road
Turtle Road
Vining Hill Road
Devils Road
Highway
Bradley Brook
Mori Road
Vining Brook
College Highway
Congamond Road
Sheep Pasture Road
Pen. Central R.R.
Powder Mill Road
Great Foster Road
Longyard Road
North Pond
LAKES
Middle Pond
South Pond
CONGAMOND
Feeding Hills Road
North Longyard Road
Southwick St.
North West St.
North Ext.
ROBINSON PARK
STATE
North Springfield Street
Threemile Cooper
Route 57
Mill
Pope St.
Garden Street
Bowles-Agowam Airport
Shoemaker
Phila
Silver Lane
Silver St.
Suffield
Main St.
Brook
West Street
Westfield
South Street
Slip Brook
Brook
A
B
C
D
E
F
G
H
I
J
K
L
M
S
1400
2400
11000
5800
2800
6000
7600
1800
5800
1300
2000
5800
1000
4500 Street
St. 8300
14,000
5200
11,000
2400
9000
7500
7000
13,500
13,800
21,600
11,600
10,000
9300
2400
900
1500
2700
2800
3300
1700
3200
2100
350
Does
Brook
1

- Agawam has continually expressed its need for a fully access controlled east-west highway facility.

Existing traffic service conditions along Route 57 are substandard in several areas and continually get worse as vehicular volumes increase. Prominent among these conditions are the very large number of curb openings, narrow traffic lanes, poor sight distances, lack of suitable pedestrian protection, undefined shoulders and sidewalks, varying speed zones, lack of signalization at prime intersections and the conflict of through and local traffic. An at-grade railroad crossing and abutting school zones add to this myriad of traffic considerations.

The 1976 Agawam Master Plan recommends that the proposed corridor for the Partial Relocation of Route 57, from Suffield Street to Provin Mountain, be protected from any type of development. In addition it also recommends that efforts be directed to the improvement of existing Route 57 in order to alleviate present congestion.

I.C. PUBLIC PARTICIPATION

The public participation program has been open and continuous throughout the Environmental/Engineering Study. As previously discussed in the Project Background, the public support for improvement to Route 57 had been uncertain due to the conflicting interests of the Agawam and Southwick communities. In an effort to respond to these stated interests, the scope of the project has been amended and abbreviated, on more than one occasion, resulting in the presently proposed alternatives. To date, Southwick has not raised any objections that Route 57 will not be relocated within their town. Agawam, however, continues to support those proposals that will relieve the traffic and safety problems of present Route 57.

In this regard Agawam has formed a "Route 57 Committee", consisting of various town officials, to ensure continuous community monitoring of the project's status. The Committee has been most helpful, throughout the Study, in supplying information and community input to the Department and in turn has relayed the project's development back to various concerned groups and individuals.

The Lower Pioneer Valley Regional Planning Commission has not only served as a vital conduit in the participatory process but has aided the study on numerous occasions by providing resource data, identifying regional concerns and via its designated role as regional transportation liaison for the Department.

Public Meeting #1

On October 20, 1976 the first public meeting was held at the Agawam Junior High School. The meeting presentation consisted of the project's development to date, which included:

a. a general discussion of the proposed alternatives at 1000' scale
b. present and projected traffic figures
c. potential number of properties impacted
d. established design control features
e. specific environmental considerations (wetland areas, historical archaeological sites, recreational lands, etc.)

The overriding sentiment of the meeting's attendees was that a second public meeting would not be needed until the results of the impact analyses were complete for the three alternatives proposed.

·Public Meeting #2

On October 20, 1977 the second public meeting was held at the Agawam Junior High School. The meeting concentrated on presenting the results of the various impact analyses attributable to each proposed alternative. Significant topics of discussion included:

a. specific engineering details of the proposed alternatives at 200' scale
b. present and projected traffic figures
c. projected number of residential and business takings
d. the results of the air, noise and water quality studies
e. under the Route Relocation Alternative the option for a partial clover-leaf interchange as opposed to a full diamond interchange at South Westfield Street; and a northerly approach versus southerly approach to Provin Mountain from South West Street.

SECTION II
CULTURAL, SOCIAL AND ECONOMIC CONTEXT

II.A. REGIONAL AND COMMUNITY GROWTH

The transportation needs of the Agawam and Southwick communities are highlighted by their respective past as well as projected population increases. The two towns are situated within the Springfield-Chicopee-Holyoke metroplitan region and attract people from the urban centers in this area. The towns are also within commuting distance from employment centers in Connecticut.

Southwick and Agawam are typical of communities that draw residents from urban areas because of their rural-suburban qualities. Despite population increases, proper planning dependent on adequate transportation facilities, can guide the growth of these towns so as not to destroy their most appealing features.

The growth rate of Agawam and Southwick is significantly greater than the growth rate of the Lower Pioneer Valley Region. This redistribution of the population away from the core city to the outskirts is apparent from the data on Table 1. The change in population between 1960 and 1970 in Agawam was +38.2% and in Southwick +23.2%. During the same period the population changed only 9.5% in the Lower Pioneer Valley Region.

The projections for the future to year 2000 show that the pattern described above is expected to continue, indicating a 30.2% growth in population for Agawam and a 42.0% increase for Southwick. These projections demonstrate that the relative needs of the two communities being discussed will increase at a much greater rate than the needs of the rest of the Lower Pioneer Valley Region.

The nature of this growth can be observed from the data on the age composition of the population on Table 2. Between 1960 and 1970 the change in the 10-24 age group was over 70% in both Agawam and Southwick. This segment of the population has either reached driver status or will do so in the near future, adding significantly to the demands placed on the existing highway system.

The corresponding change between the years 1960 and 1970 in the 44-64 age group of 55% in Agawam and 47.7% in Southwick demonstrates the movement of families into the area. This conclusion can also be derived from the proportion of houses built since 1950, significantly between 1965 and 1970, especially in Agawam (24.2%).

TABLE 1

POPULATION GROWTH
LOWER PIONEER VALLEY REGION

	U.S. Census			State Census*			Population Projections & Percent Changes									
	1960	1970	% Change	1965	1975	% Change	1980	%	1985	%	1990	%	1995	%	2000	%
Agawam	15,718	21,717	38.2	17,484	24,305	39.0	27,170	7.3	30,300	8.1	33,280	7.0	35,330	4.9	36,560	2.9
Southwick	5,139	6,330	23.2	5,619	7,028	25.1	7,830	9.9	8,630	10.1	9,600	11.3	10,260	6.9	10,660	3.8
Granville	874	1,008	15.3	984	1,183	20.2	1,250	5.8	1,350	7.8	1,420	5.3	1,460	3.0	1,480	1.2
Westfield	26,302	31,433	19.5	28,020	32,863	17.3	37,080	6.4	40,510	9.2	43,630	7.7	46,260	6.0	48,110	4.0
West Springfield	24,924	28,461	14.2	26,070	28,249	8.4	29,620	3.5	30,640	3.5	31,490	2.8	32,020	1.7	32,370	1.1
Longmeadow	10,565	15,630	47.9	13,809	16,676	20.8	17,230	5.0	17,960	4.2	18,510	3.0	18,960	3.0	19,290	1.7
Total for Lower Pioneer Valley Region	532,582	583,031	9.5	535,346	584,388	9.2	625,540	3.1	648,770	3.7	671,130	3.4	689,280	2.7	703,450	2.0

Sources: - 1960 and 1970 data from U.S. Census Bureau
- 1965 and 1975 data from Massachusetts State Census
- 1980 thru 2000 projections based on cooperative effort by Massachusetts Office of State Planning and LPVRPC

* Does not include student and military populations

TABLE 2

POPULATION: AGE COMPOSITION, 1960-1970

AGAWAM

AGE	1960		1970		CHANGE: 1960-1970	
	No.	%	No.	%	No.	%
0 - 9	3,518	22.4	3,994	18.4	476	13.5
10 - 24	3,286	20.9	5,690	26.2	2,404	73.2
25 - 44	4,645	29.6	5,529	25.4	884	19.0
44 - 64	3,088	19.6	4,790	22.1	1,702	55.1
65 +	1,181	7.5	1,714	7.9	533	45.1
TOTALS	15,718		21,717		5,999	38.2

SOUTHWICK

0 - 9	1,382	26.9	1,300	20.5	-82	-6.1
10 - 24	1,098	21.4	1,888	29.8	790	71.9
25 - 44	1,564	30.4	1,581	25.0	17	1.1
45 - 65	812	15.8	1,199	18.9	387	47.7
65 +	283	5.5	362	5.7	79	27.9
TOTALS	5,139		6,330		1,191	23.2

Source: U. S. Department of Commerce, Bureau of Census.

TABLE 3

HOUSING UNIT CHARACTERISTICS, 1970

		Agawam	Southwick
Year-Round Housing Units		7,083	1,924
Owner-Occupied Units		4,716	1,422
Renter-Occupied Units		2,127	384
Vacant Units		240	118
Automobiles Available Per Household	1	3,541	920
	2	2,450	669
	3 or more	329	114
	None	496	73

Source: U. S. Department of Commerce, Bureau of Census.

The significance of owner-occupied housing units (See Table 3) also provides a measure with which to delineate the general nature of the community. This land use further emphasizes the large number of families in the area. The latter are characteristically dependent on the automobile.

The data on housing and neighborhoods can be used to locate traffic generators and provide a basis for estimating transportation needs of a community. The location of a highway network will affect the neighborhoods and economic characteristics of the area. Therefore, it is necessary to have a basic understanding of the existing situation.

Agawam has traditionally had several distinct neighborhoods such as North Agawam, Feeding Hills and the older center on Main Street. There are now three or four other areas which could be classified as neighborhoods. Density varies from North Agawam with the highest density, to the southwest with the lowest residential population (See Figure 5).

Southwick has been divided into four districts by the U.S. Bureau of Census. The Town's Master Plan utilizes the same neighborhood designations. The four districts are: Center Neighborhood, West Southwick, East Southwick and the Congamond Neighborhood. The study area is located in both the Center and East Southwick Neighborhoods.

Employment characteristics and economic growth are interrelated with efficient transportation facilities. The latter can be used as one of the means to attract both residents and industry thus improving the economic base of the community.

Manufacturing (46.1%), followed by wholesale and retail trade (24.4%) are the major industries in Agawam. The recreation industry increases somewhat in the summer.

Commercial activity in Southwick is centered along the major streets in town. The majority of the commercial enterprises can be classified as general commercial followed by automotive oriented businesses and a few office-type commercial activities.

Industrial land is mainly utilized for sand and gravel mining. General industry is found throughout the town on a relatively small scale.

TABLE 4

WORKER TRANSPORTATION CHARACTERISTICS, 1970

Means of Transportation	Agawam		Southwick	
	No.	%	No.	%
Private Auto: Driver	7,236	79.1	1,959	80.3
Passenger	1,266	13.8	262	10.7
Bus or Streetcar	176	1.9	6	0.2
Walked to Work	228	2.5	85	3.5
Worked at Home	81	0.9	92	3.8
Other	161	1.8	36	1.5
Totals	9,148		2,440	
Place of Work	**No.**	**%**	**No.**	**%**
Springfield	2,533	27.7	246	10.1
Chicopee	308	3.4	24	1.0
Holyoke	256	2.8	13	0.5
Remainder of Inner Hampden County (Includes Agawam)	3,557	38.9	655	26.8
Outer Hampden County and Hampshire County	156	1.7	505	20.7
Worcester County	6	0.1	-	-
Outside Standard Metropolitan Statistical Area(mainly Conn.)	1,835	20.0	939	38.5
Not Reported	497	5.4	58	2.4
Totals	9,148		2,440	

Source: U. S. Department of Commerce, Bureau of Census

The data in Table 4 emphasizes the commuting nature of both Southwick and Agawam and the population's consequent dependence on the automobile. Approximately 80% drive to work in both Agawam and Southwick and over 10% in each town are passengers.

The Place of Work Section also found in Table 4 indicates that a large number of people travel in the east-west direction when commuting to work. This emphasizes the heavy usage and importance of the Route 57 transportation corridor.

II. B. PROJECTED GROWTH

II. B. 1. Single-family housing

Present housing development in Agawam averages about 125 homes a year with approximately 1,600 lots currently available for building purposes. Within the project area, the projected housing density as recommended in the Agawam Master Plan (Figure 3)calls for:

1. a one family per acre density from the Southwick border to South West Street.
2. a two and one-half family per acre density from South West Street to South Westfield Street.
3. a three family per acre density with the parameters being Westfield Street to Suffield Street up to Suffield Corner, westerly along Silver Street to a midpoint before Franklin Street and then running in a northwesterly direction to Route 57. A good deal of the land within this area is projected for industrial use and will be discussed as such later.
4. a three and one half family per acre density within the project area would include Mill Street, Holland Drive and Suffield Street from Suffield Corner to Route 57.
5. four and five family per acre densities are found out of the project corridor in the already high density areas of north and northeast Agawam.

II. B. 2. Multi-family housing

Approximately 1/3 of the town's dwelling units are renter occupied. The Master Plan recommends that this number not be exceeded at any given time. It therefore endorses a relative increase in the number of rental units through 1985 that would correspond to an increase in the total housing stock. The location of any new units would be limited to the following areas:

1. The Corey Street area, south of Existing Route 57
2. The Rowley Street area on the east side
3. The Suffield Corner area at Silver Street
4. The Hubbard Corner area at Shoemaker Lane

II. B. 3. Specific Proposals

Specific development proposals presently under consideration by the Planning Board in southwest Agawam include:

Pheasant Hill Village - This proposed development consists of 200 apartments and townhouses, with 112 units reserved for

LEGEND

Residential Land Use

AVERAGE DENSITY OF DWELLING UNITS PER ACRE OF BUILDABLE LAND (NET) 1,2..5

MULTI-FAMILY CLUSTERS

BOUNDARY OF DENSITY AREAS

Industrial Land Use

INDUSTRIAL

AIRPORT & INDUSTRIAL PARK

Conservation

POORLY & VERY POORLY DRAINED SOILS

STEEP SLOPES OVER 15% GRADE

FLOOD PRONE

Recreation

PROPOSED PLAYGROUND

PROPOSED PLAYFIELD

PROPOSED TOWN PARK

Commercial Land Use

COMMUNITY SHOPPING FACILITIES

NEIGHBORHOOD SHOPPING FACILITIES

SPRINGFIELD ST NEIGHBORHOOD CONSERVATION AREA

MIXED INDUSTRIAL-COMMERCIAL USE

OFFICE PARK

RECREATIONAL & RELATED FACILITIES

Natural & Recreation Features

RIVERS

STREAMS

GOLF COURSE

PUBLIC OPEN SPACE

PRIVATE OPEN SPACE

PUBLIC FACILITIES

Transportion Plan

CONTINUATION OF ROUTE 57, NEW SOUTHERLY-EAST & WEST ROAD, IMPROVEMENT OF PRESENT ROADS & MORE MASS TRANSIT

1976

SCALE: 0 3000

ROUTE 57 SOUTHWICK-AGAWAM

SUMMARY OF AGAWAM MASTER PLAN

FIGURE 3

elderly residents, in a total of 31 buildings along South West Street. Pheasant Hill Village will be built on 17 acres within a 50 acre site.

Barry Street - Due to the extension of water lines out to this area, the potential for development has increased. An application to subdivide property owned by Consolidated Cigar Corporation has recently been presented for approval to the Agawam Planning Board. The proposed subdivision consists of 52 lots.

Rising and Cesan Street - This proposed subdivision is located at the corner of Shoemaker Lane and Poplar Street and would consist of approximately 40 sites to be built on 23 acres of land.

Fox Drive - New homes continue to be constructed in this area, south of Leonard Pond on South West Street. Approximately 80 of the almost 100 subdivisions have been built upon.

The Heights - A proposal for developing over 35 acres extending Bradford Drive east from South Westfield Street has been rescinded. Only 5 of the originally proposed 130 subdivisions will be built upon. The land is going to revert to its original agricultural use.

II.B.4. Commercial Development

Agawam presently has two community-wide shopping areas with one being the central commercial district at Springfield/Suffield/ Walnut Street and the other at Suffield /Silver Street. A retail market study completed in early 1975 by Brown, Donald and Donald, Planning Services Inc. revealed that a market probably exists for a third commercial center. The Town Master Plan, however, does not recommend that land be set aside for a third large retail center. The major reasons for this are:

1. There is no open site in Agawam large enough to construct a major shopping area without creating the inherent problems of neighborhood disruption, noise, increased traffic etc.
2. Results of the Agawam Community Survey indicated that a large number of townspeople would object to any such proposal.
3. It is quite possible that a third large shopping area would detract business from the two existing centers.
4. It is anticipated that any retail expansion that will occur could be accomodated at the town's two existing retail sites.

Projected commercial development in Agawam is expected to occur primarily in the neighborhood shopping areas. The Town Planning Board has recommended five general locations to provide for this type of projected growth. Of the five, one falls within the project area.

Feeding Hills Center, located in west Agawam on existing Route 57 (Springfield Street), is presently the town's major neighborhood retail center. As Agawam's development continues, it is expected that a good deal of this growth will take place in the town's western area. The Master Plan has designated the Feeding Hills area as a neighborhood retail and service center to better accomodate future expansion, particularly in light of the area's anticipated growth. The Master Plan recognizes "that any expansion of the Feeding Hills area must await substantial improvements in the traffic situation along Route 57".

II. B. 5. Industrial Development

Agawam's industrial growth has occured at a far slower rate than that of residential or commercial uses. Efforts to stimulate industrial development have been inconsistent, although the Bowles-Agawam Airport property has been designated by the town as the most feasible site for any such development. The Agawam Master Plan states "that the scope of industrial development is dependent in large part on the future of Route 57 - its location and its timing. A relocated Route 57 would have the potential of opening up airport land to industrial development. The airport has a unique potential in that it is the largest single parcel of excellent buildable land, a central location and an airfield. Residential & retail commercial uses should not be permitted so that the highest and best use of this area may be achieved." These intentions notwithstanding it should be noted that many industrial parks both in the region and elsewhere have not successfully attracted new industrial development despite elaborate utility systems and improved transportation access.

II. B. 6. Vacant Buildable Land (Figure 4)

As seen by the Physical Characteristics of Vacant Land Inventory in Table 5,the well drained buildable land remaining in Agawam amounts to 2,015 acres or 27.5% of all vacant land, almost all of which is located in the south & westerly portions of town,with the airport property having approximately 310 acres and the Barry Street area having approximately 200 acres.

The moderately drained buildable land in town amounts to 1,499 acres or 20.6% of all vacant land. These areas are generally scattered with no significant areas of concentration.

TABLE 5

PHYSICAL CHARACTERISTICS OF VACANT LAND, AGAWAM, MASSACHUSETTS

	ACRES	PER CENT OF TOTAL
Well Drained Buildable Land	2,015	27.5
Moderately Drained Buildable Land	1,499	20.6
Moderately drained	386	5.3
Moderately drained, with seasonal surface water	1,113	15.3
Areas having Building Limitations	3,784	51.9
Shallow hardpan layers	1,150	15.8
Deep hardpan layers	157	2.2
Slopes over 15%	97	1.3
Bedrock within 2.5' to 5.5' of surface	285	3.9
Poorly and very poorly drained soils	1,723	23.6
Subject to flooding	157	2.2
Unclassified	215	2.9
TOTAL VACANT LAND	7,298	100.0

SOURCE/ Brown, Donald and Donald Planning Services, Inc.
U.S.D.A., Soil Conservation Service

As stated in the Agawam Master Plan, "the areas having significant limitations for building account for 3,784 acres and 51.9% of all vacant land." This is a highly revealing fact, particularly in light of the continued pressure for development within Agawam. It means that building activity in the future will have to be carefully planned and reviewed to prevent environmental abuse and resultant problems of drainage, erosion, pollution and general environmental quality of life. Areas of this type within the project area are along South West Street at the foot of Provin Mountain, Leonard Pond and certain sections of Johnson's Corner and Feeding Hills.

The largest category of this grouping are the poorly and very poorly drained soils. They are generally associated with watercourses, and swamps and marshes. They frequently have high value for conservation and many areas can be identified as 'Inland Wetlands'. Almost one quarter of the vacant area is so classified. Particulary large areas are to the west of South West Street along the foot of the mountainous terrain. Other large areas are related to the major brooks and drainage systems in the town.

II.B.7. Public Facilities and Services

Figure 5 highlights the major community facilities located in the towns of Agawam and Southwick. Due to the dependence by the communities on these facilities, they have been designated as design controls in the development of the proposed transportation alternatives. Therefore, none of the listed facilities would be impacted by the improvement alternatives.

LEGEND

EXISTING LAND USES

RESIDENTIAL
- SINGLE FAMILY
- CONDOMINIUMS
- APARTMENTS
- TWO-FAMILY
- TRAILERS

COMMERCIAL
- COMMERCIAL
- AUTOMOTIVE COMMERCIAL
- WHOLESALE & STORAGE
- OFFICE & PROFESSIONAL
- COMMERCIAL RECREATION

INDUSTRY
- INDUSTRY
- EXTRACTIVE

PUBLIC & SEMI-PUBLIC
- PUBLIC
- SEMI-PUBLIC
- CEMETERY
- AIRPORT — AS LABELED

PUBLIC & SEMI-PUBLIC OPEN SPACE
- PUBLIC OPEN SPACE
- SEMI-PUBLIC OPEN SPACE
- WATER COMPANY

UTILITIES
- UTILITIES
- ROADS — AS LABELED

AGRICULTURE
- AGRICULTURE
- GREENHOUSES

PHYSICAL LIMITATIONS
- WELL DRAINED BUILDABLE LAND
- MODERATELY DRAINED BUILDABLE LAND
- MODERATELY DRAINED BUILDABLE LAND WITH SEASONAL SURFACE WATER
- SHALLOW HARDPAN LAYERS
- DEEP HARDPAN LAYERS
- SLOPES OVER 15%
- BEDROCK WITHIN 2 1/2' - 5 1/2' OF SURFACE
- POORLY & VERY POORLY DRAINED SOILS
- ALLUVIAL SOILS SUBJECT TO FLOODING
- UNCLASSIFIED MADE OR FILLED LAND

SOURCE: BROWN, DONALD & DONALD FIELD SURVEY, NOVEMBER 1974

1976

SCALE: 0 — 3000

ROUTE 57
SOUTHWICK - AGAWAM

AGAWAM
VACANT LAND CHARACTERISTICS

FIGURE 4

LEGEND:

1 - Agawam Town Offices
2 - Robinson State Park
3 - Agawam Junior High School
4 - Agawam Senior High School
5 - Granger School
6 - Southwick Junior-Senior High School
7 - Southwick Town Common
8 - Southwick Town Offices

ROUTE 57
SOUTHWICK–AGAWAM

NEIGHBORHOOD AND COMMUNITY FACILITIES INVENTORY

FIGURE 5

H.W. Lochner, Inc.

II. C. CONSERVATION AND PRESERVATION

II. C. 1. Topography

The Connecticut River Valley forms the heart of the Springfield Region, with urban development approximately centered on the confluences of the Connecticut, Chicopee, and Westfield Rivers. The Berkshire and Wilbraham Mountain Ranges adjoin the valley floor and separate the urbanized areas from the surrounding rural highlands. In the study area, the Provin-Mount Tom-Holyoke Mountain Range separates Southwick and Westfield from Agawam and West Springfield. Other topographic features, such as drainage courses, water bodies, small ridges and hills, further separate individual neighborhoods from one another and provide interest and variety.

Most of Agawam's land is relatively level or gently rolling, with occasional steep valley slopes where watercourses have cut their way through the natural surfaces. The average ground surface elevations vary from 100 to 250 feet above sea level. On the west, the steep slopes of Provin Mountain form a natural division between Agawam and Southwick. This mountain rising to elevations in excess of 600 feet is traversed by east-west highways at only three locations, The steepness of most of the slopes of the mountain makes much of its area unsuitable for normal development. Some of the lowlands adjoining the Connecticut and Westfield Rivers are subject to occasional flooding and another 4 to 5% of the town's land area are swamps and wetlands. Most of the remainder of the land, however, is suitable for development.

The northern part of Agawam drains into Westfield River by a series of minor streams and consists mainly of river terrace land. Three Mile Brook and Worthington Brook, with its tributaries flowing south and east into the Connecticut River, form a system of watercourses which drain the central section of the town. The southwest corner of the town is drained by Still and Philo Brooks and their tributaries flowing southward to Suffield and the Connecticut River. (See Figure 6).

Southwick is generally bounded by Drake and Sodom Mountains on the west and Provin Mountain on the east. The easterly half of the town is generally level and rolling, with the Congamond Lakes to the south. The westerly half is more rolling and somewhat higher in elevation. The average ground surface elevations vary from 200 to 350 feet east of Route 10-202 and from 300 to 500 feet west of the town's

center. At Drake and Sodom Mountains the elevations reach 900 to 1000 feet. Almost 50% of Southwick's land is of limited buildability and unsuitable for intensive development. Some 15% of the land total are poorly drained wet areas of bedrock and hardpan areas with slopes in excess of 15%. Most of the readily buildable land lies in the eastern half of the town and along Loomis Street to the east of Drake Mountain.

The easterly two-thirds of Southwick is drained by Great Brook and its tributaries. Great Brook originates at the Congamond Lakes and meanders through the Town in a generally northerly and easterly direction to Westfield River. Shurtleff Brook drains the westerly third of the Town and also flows northbound to Munn Brook and Westfield River.

II.C.2. Natural Environment

The natural habitat of Agawam and Southwick may be classified in the following categories: wooded, wooded swamp, wetland, and open meadowland. The existing interrelationship of these environs encourages varied growth ranging from small tussocks of sedge to sixty foot plus maple trees.

II.C.3. Wetlands

Nine wetlands of varying significance are located in the Route 57 corridor area. These wetlands and associated resources are shown in Figure 6 and further described in this section.

W1 Tuttle Brook

Small fresh meadows, shallow fresh marshes, and shrub swamps are connected by Tuttle Brook and its tributaries, This wetland complex, largely limited to the stream valley, covers 45 acres. It runs north from Route 57, across Coes Hill Road, and one-half mile farther north.

Alders and young red maples over sedge tussocks characterize the shrub swamp zones. Fresh meadows, consisting chiefly of soft rush and sedge, separate the shrubs from the agricultural land on the west side, The southern portion of the meadow is grazed while the northern part is under cultivation.

Woodcock, pheasants, grouse, muskrats and songbirds inhabit the wetland. Deer use the northern end for food and cover.

W2 Great Brook Shrub Swamps

Two dense thickets of shrub swamp, connected by Great Brook, occupy 34 acres. The complex lies one-half mile south of Route 57 and continues approximately one mile upstream.

Dense thickets of large alders and dogwoods are interspersed with clumps of red maple and elm trees. Black willow is quite abundant along the stream edge. Red maples growing on the edge of the flood plain are beginning to intrude into the shrub area, adjacent to the stream. Huge white pine trees border the wetland, contrasting with the shrub swamp.

Beavers have opened up the dense wooded sections. Their dams have created ponds along Great Brook which support emergent plants like Reed canary grass in open moist sites.

Beaver ponds attract tree swallows, fly catchers, warbles, woodpeckers, herons, kingfishers, raccoons, muskrats, mink, snakes, turtles, frogs and salamanders. Woodcock, grouse and songbirds inhabit the shrub swamp. Native trout spawn in this section of Great Brook.

W3 Great Brook Wooded Swamp

Located in what is probably a meander scar of Great Brook, just east of the brook and north of existing Route 57, lies this 19 acre wooded swamp. Several small streams drain into Great Brook and during periods of high water the flow reverses, bringing water from the brook into the swamp.

Within this small wetland are essentially two distinct kinds of wooded swamp - a lowland red maple wooded swamp with open sedgy areas and standing water, and a drier swamp of hemlock, pine, tamarack, and sphagnum moss. The presence of tamarack suggests that this wetland may once have been a bog. Permeable sand and gravel deposits encircle the wetland area to the southeast and northeast. Pitch pine, white pine, and oak provide contrasting vegetation.

Muskrats, foxes, rabbits, squirrels and deer use the area. The wetland provides a nesting habitat for wood ducks, black ducks and mallards. Great Brook itself supports stocked trout and a good population of native brown trout. Canada geese and other species of waterfowl use the adjacent stream during migration.

W4 Wetland Complex above Harts Pond

Wooded and shrub swamps collectively occupy about 80 acres in a valley upstream and northwest of Harts Pond, just west of the Agawam-Southwick town line. This wetland drains into Leonard Pond and Still Brook. Harts Pond is a 4-5 acre deep marsh at the southern end of Provin Mountain. Open land surrounds the pond on all sides except to the west where a shrub swamp begins and continues north and west for over one-half mile up a narrow stream valley to a small pond created by damming the stream for tobacco irrigation. Above this pond the shrub swamp continues further northwest for another one-half mile.

Harts Pond is flanked by a bank of cattails. Landward from the cattails are dogwoods and alder. In the shrub swamp young red maples, alders and dogwood predominate. Tussocks of sedge cover the ground in the lower shrub swamp, while in the upper area sensitive ferns form the chief ground cover.

Except for Harts Pond and the small irrigation pond, the principal value of this wetland complex is for upland wildlife. Deer, grouse, raccoon, rabbits and woodcock are found here. Harts Pond serves as a nesting area for blue-winged teal, mallards and red-winged blackbirds. It is also used by waterfowl during migration and my muskrat throughout the year.

Access to this wetland is difficult and the area retains a wild undisturbed character.

W5 Agawam Bowmen's Club Wetland

Located in a stream valley just west of the Agawam-Southwick town line and abutting Route 57 is a 15-20 acre wooded swamp owned by the Agawam Bowmen's Club. The stream draining this area feeds the Leonard Pond complex.

The dominant tree species are mature red maple, ash and elm. Yellow birch and paper birch occur along the edges of the swamp.

Highbush blueberry, spicebush, dogwood, alder and other shrubs make up the rather dense underbush. Sedge tussocks and sensitive ferns constitute the principal ground cover.

The value of this area to wetland wildlife species is limited due to the lack of open water. Chief value of the area is for upland wildlife species which includes deer, grouse, fox and rabbits.

The wetland is owned primarily by the Agawam Bowmen's Club and has been incorporated into a recreation area for members and youth groups.

W6 Leonard Pond and Wooded Swamp

This wetland complex is located in western Agawam, just west of South West Street and beginning approximately one-half mile south of existing Route 57. The total wetland area is 55-60 acres and the main wetland classes are deep marsh (Leonard Pond - 9 acres) and wooded swamp (45-50 acres). Shallow marsh is present just northwest of Leonard Pond and patches of shrub swamp are scattered throughout the area. One small stream drains agricultural land and enters the swamp on the northwest side. The other feeder stream enters the southwest end and drains both Hart's Pond with its associated wetlands and the Agawam Bowmen's Club Wetland. Outflow is through Still Brook.

Red Maple is the dominant tree species. To the south sedge tussocks also become abundant. In the wetter areas of the woods ash, elm, black willow and pine oak occur. Spicebush, viburnum, highbush blueberry and other shrubs comprise the understory in the wooded swamp. Ferns are the dominant form of ground vegetation. Sedges are dominant in the shallow marsh zone adjacent to Leonard Pond. Leonard Pond itself is a deep marsh surrounded by shrubs, with buttonbush as the most common species. Floating vegetation covers much of the open water area. Submergent vegetation, mainly coontail and pondweeds, is abundant also.

The Leonard Pond complex is a valuable wildlife habitat area. Its deep marsh is a highly productive wood duck nesting area. Food is abundant and emergent plants and shrubs offer excellent cover for the raising of duck broods. Mallards nest in the shallow marsh. During the spring and fall migrations, the wetland receives heavy use as a feeding and nesting area for Canada geese, mallards and black

ducks. A number of songbirds inhabit the area, and the marsh and swamp provide a year-round habitat for raccoon, rabbits, muskrats, mink, grouse and deer.

W7 Irrigation Pond

This small (8-9 acres) wetland was formerly a shrub swamp that has been made into an irrigation pond by the damming of a tributary of Still Brook. The pond is located at the southern end of tobacco farm land and lies directly to the west of the intersection of Pine and South Westfield Streets. Fresh open water and shrub swamp are the principal wetland classes at the present time.

The pond was formed only recently so that wetland vegetation has had little time to become established along the shores. Open tobacco fields surround the pond. The relatively steep banks on the east shore support an unbroken strip of trees including red maple, yellow birch, red oak, paper birch and large staghorn sumacs. A stand of trembling aspen occupies the northeast bank. The west shore is open with only scattered alders, young red maples, viburnum and raspberries. Emergent vegetation predominates along the water's edge.

Wildlife has not yet had the opportunity to establish itself in this area, but in many ways this pond is like a beaver pond and similar wildlife species can be expected.

The main function of the pond is as an irrigation storage facility. No recreational uses are known.

W8 Feeding Hills Shallow Marsh

This 13-acre wetland is located on the upstream portion of Philo Brook in Feeding Hills. Existing Route 57 crosses the northern end of the wetland about 1800 feet east of Westfield Street. The central part of the area is a shallow marsh. A small pond comprises the west side of the southern portion of the wetland. Agricultural land borders the marsh on the west side and the east side is bordered by a small strip of woods.

Although this is a fairly small wetland area, it contains wooded swamp, shallow marsh and open water. Vegetation found here includes sedges and cattails in the shallow marsh; alders and dogwoods scat-

tered along the north side of pond and the eastern one-third of the wetland; and red maple, alder and highbush blueberry north of Route 57.

The area is valuable for muskrat habitat due to its marsh character and associated pond and stream. It provides winter pheasant and rabbit habitat. It supports a variety of songbirds, various sandpipers and nesting woodcock.

Recreational uses include hunting and limited ice skating. A snowmobile trail runs through part of the area.

W9 Silver Lake and Associated Wetlands

Silver Lake is a small, narrow body of water 8-9 acres in size, formed by the damming of a tributary of Threemile Brook. The lake is bordered on the north and south sides by steeply sloping banks. It serves as a year-round recreational area for the surrounding residential neighborhood. Uses include swimming, boating, fishing, skating, etc.

There is a small shrub marsh area at the west end of Silver Lake. This wetland grades into a wooded swamp which follows the feeder stream westward for approximately one-half mile before reaching the West Springfield Sportsmen's Club trout pond. The banks are steep, the wetland varying from 15 to 25 yards in width. The stream meanders through the narrow valley, flowing in places through small pools of water.

West of the trout pond the feeder stream divides into two and then three separate feeder segments which continue west and north in a steep, ravine-like setting for approximately one-half mile before terminating in a generally flat area east of Poplar Street. The relocated route would directly affect the Silver Lake wetlands only in this last feeder stream area where it is necessary to cross two of the feeder segments.

Vegetation found in the Silver Lake wetland area includes red oak, hemlock, white pine and maple at the banks of the lake with highbush blueberries on the shore beneath the trees. The shrub swamp consists chiefly of alders, some grey birch, young red maples, willows, a small patch of swamp rose and spiraea. Sedge tussocks form the

ground cover except where small stands of cattails occur amidst the shrubs. In the wooded swamp and feeder stream areas the dominant vegetation consists of red maple, elm, and ash, with some blue beech. Locally there are brushy areas of silky dogwood, arrowwood and high-bush blueberry. Cattails occur in isolated patches where ground water seepage provides moist conditions.

Silver Lake supports warm water fish such as pickerel and sunfish. Both the lake and wetlands along the brook are used by ducks and geese which shuttle regularly between this location and Forest Park in Springfield. Typical wildlife species of shrub swamp and wooded swamp are found here, including good populations of woodcock and pheasant. The area also supports a wide variety of songbirds.

A-1 Great Brook Aquifer

The Great Brook basin is carved in sedimentary and volcanic rocks of Triassic Age. Between Provin Mountain and the foothills of the Berkshires, erosion has created a deep valley in the bedrock surface which has been filled with a thick sequence of glacial melt-water deposits (stratified drift). The saturated thickness of the fill varies from 40'-190', with the axis of deepest fills essentially following the present surface drainage of Great Brook. The storage capacity of this aquifer is estimated at 15 billion gallons. Some 7.5 billion gallons of water are estimated as useable.

Approximately one mile north of Route 57, Great Brook becomes influent, that is, it yields water from its channel by infiltration to the aquifer below. This is also the approximate site where the town of West Springfield's wellfield is located. When pumping, the cone of depression extends radially, overlapping the areas where Great Brook is influent.

Metacomet - Monadnock Trail

The Metacomet - Monadnock Trail is a hiking trail which starts in Connecticut, runs over Provin Mountain at Route 57 and goes on to the Mt. Tom range before crossing over the Connecticut River and continuing north and east to Mt. Monadnock in New Hampshire. The trail is listed in the Appalachian Mountain Club trail guide for Massachusetts, Connecticut and Rhode Island.

LEGEND:
Wetlands:
W1 - Tuttle Brook Wetlands
W2 - Great Brook Shrub Swamps
W3 - Great Brook Wooded Swamp
W4 - Wetland Complex Above Harts Pond
W5 - Agawam Bowmen's Club Wetland
W6 - Leonard Pond and Wooded Swamp
W7 - Irrigation Pond
W8 - Feeding Hills Shallow Marsh
W9 - Silver Lake and Associated Wetlands
W10 - Threemile Brook Wetland
SV - Streamside Valley Areas
M - Mountain Areas
A-1 - Ground Water Recharge Area
- Metacomet-Monadnock Trail
SCALE
MILE
1000 0 1000 2000 3000 4000 5000 6000 7000 FEET
ROUTE 57
SOUTHWICK – AGAWAM
NATURAL RESOURCE INVENTORY

FIGURE 6

II.C.4. Recreational Areas

There are several recreational properties that are significant within the project area, but are not considered 4 (f) lands, due to the private ownership of the properties.* However, they have been designated as design control points in developing the alternative alignments. Some of these properties, as well as other design control features, are shown in Figure 7.

O' Toole Antlers Club - The Antlers Club land and clubhouse located off Suffield Street just north of Mill Street provides picnicking and club facilities for its members. The land provides open space and access to the woods for hiking.

Polish American Club - The Polish American Club located off Route 57 provides a clubhouse, pavillion, picnicking and field sports for its members.

Agawam Bowmen's Club - The Agawam Bowmen's Club located near the Southwick town line provides a clubhouse with a 28 station bow and arrow range for its members. The ledge outcroppings in this area are suitable for geology study.

Springfield Turnverein - The Springfield Turnverein located off Garden Street provides a large clubhouse and gym, picnic area and a small pond for fishing and swimming. The woodland is suitable for hiking.

Pioneer Valley Tennis Club - Pioneer Valley Tennis Club located off Mill Street provides inside tennis courts and a golf driving range for its members. This site also provides access to power lines, right-of-way for hiking and limited snowmobiling.

Leonard Pond and Swamp - Leonard Pond and the surrounding marsh and swamp area are suitable for ice skating, warm water fishing and limited conoeing, for preservation and management as wildlife habitat for waterfowl and furbearers and as a nature study area. The pond has several wood duck boxes with cattails and shrubs on the edges of the pond. The area adjacent to the pond is a hardwood swamp.

---

* Taken from the Natural Resources Program Report of Agawam, May 1975

St. Anne Golf Course - The St. Anne Golf Course off Shoemaker Lane provides golf to its members. The slopes by the clubhouse are suitable for sledding and beginners skiing. Golfers are offered a 360° paroramic view of the surrounding area.

West Springfield Fish and Game Club - The West Springfield Fish and Game Club located off Garden Street contains a clubhouse, pond and archery range. The small pond is now used for warm water fishing. The trail in the oaks on the ridge north of the pond is suitable for hiking around the pond and limited camping in the oaks for youth organizations.

II. C. 5. Section 4 (f) Lands

Section 4 (f) of the Department of Transportation Act of 1966, as amended, provides for the protection of those types of properties where there is no feasible and prudent alternative to the use of that property. The following type may be considered in this category:

A. A publicly owned park, recreation area, or wildlife and waterfowl refuge of local, state, or national significance.

B. Any historic site/property of local, state, or national significance.

The alternatives presented do not use any lands as stated above.

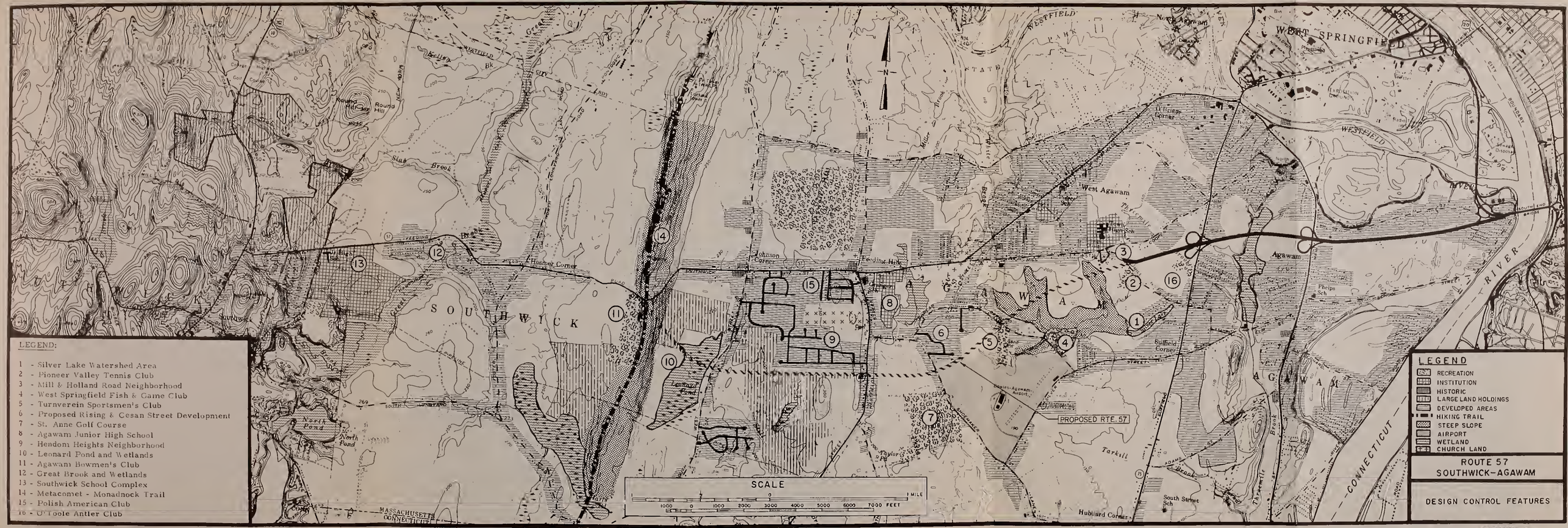

LEGEND:
1 - Silver Lake Watershed Area
2 - Pioneer Valley Tennis Club
3 - Mill & Holland Road Neighborhood
4 - West Springfield Fish & Game Club
5 - Turnverein Sportsmen's Club
6 - Proposed Rising & Cesan Street Development
7 - St. Anne Golf Course
8 - Agawam Junior High School
9 - Hendom Heights Neighborhood
10 - Leonard Pond and Wetlands
11 - Agawam Bowmen's Club
12 - Great Brook and Wetlands
13 - Southwick School Complex
14 - Metacomet - Monadnock Trail
15 - Polish American Club
16 - O'Toole Antler Club
SCALE
MILE
1000 0 1000 2000 3000 4000 5000 6000 7000 FEET
PROPOSED RTE. 57
SOUTHWICK
AGAWAM
WEST SPRINGFIELD
WESTFIELD
CONNECTICUT
RIVER
LEGEND
RECREATION
INSTITUTION
HISTORIC
LARGE LAND HOLDINGS
DEVELOPED AREAS
HIKING TRAIL
STEEP SLOPE
AIRPORT
WETLAND
CHURCH LAND
ROUTE 57
SOUTHWICK–AGAWAM
DESIGN CONTROL FEATURES

FIGURE 7

SECTION III
ALTERNATIVES CONSIDERED

III.A. NO-BUILD ALTERNATIVE (Existing Roadway Facility)

The No-Build Alternative represents a do-nothing approach to the existing roadway situation. No improvements would be considered under this alternative. Consequently vehicular and pedestrian movements would remain the same. Access to and from the west at the Suffield Street interchange would not be provided and all intersections including those at Westfield and West Streets would remain unchanged. The present roadway facility is described in more detail below.

The study area begins with Route 57 crossing over Suffield Street as a four lane divided limited access highway. Some 1000' westerly the roadway merges into a single two lane facility and then to Mill Street. From this point the roadway continues westerly as a two lane arterial, with no access control, to Route 10-202 in Southwick. The numerous abutting streets and driveways are attributable to the area's educational, commercial and residential growth and further add to the existing roadway's traffic conflict points.

Traffic controls, installed in efforts to reduce the traffic conflict locations, are evident throughout the study area. Beginning with the intersection at Mill Street (Route 57), Cooper Street and Holland Drive, there is a channelization island and a stop sign on Cooper Street. Further west, Springfield and Mill Streets form a "Y" intersection controlled by a stop sign and a traffic channelization island on Mill Street. Continuing west, the intersection of Southwick Street (Route 57) with North and South Westfield Streets (Route 187) is one of the area's principal problem locations. This intersection is presently directed by a semi-actuated traffic controller with post mounted traffic signals at the intersections's four corners. The horizontal alignment of the eastbound and westbound Route 57 intersection approaches is especially significant, as the traffic approach lanes are skewed and offset to each other. North and South Westfield Streets also form an angle point at the intersection. Approximately 4000' to the west, Southwick Street (Route 57) intersects North and South West Streets. This intersection is controlled by small channelization islands and stop signs on North and South West Streets.

In Southwick, Feeding Hills Road (Route 57) intersects with Foster Road and North Longyard Road. As with other less traveled local roads, including nearby Powder Mill Road, traffic controls are

limited to posted stop signs. Further west, the intersection of Route 10-202 and Feeding Hills Road (Route 57) is controlled by a semi-actuated overhead traffic signal with free right-turn movement to the north. Some 4000' to the south, Route 57 veers off Route 10-202 to the west as Granville Road. At this location vehicular movements are controlled by an overhead fixed-time traffic signal and posted stop signs. Granville Road and Depot Street are offset and form an angle point at this intersection. The study area terminus is approximately 1 mile west at the junction of Granville and Hillside Roads. Traffic controls at this intersection consist of one stop sign and a traffic channelication island.

As indicated on Figure 8, the existing roadway width varies from 30' to 35' and provides for one travel lane in each direction with severely restricted refuge space for breakdowns. The existing right-of-way width varies from 50' to 60'.

The No-Build Alternative is utilized essentially as a comparative tool for analyzing the proposed improvements in lieu of no improvements whatsoever.

III. B. UPGRADED EXISTING ROUTE ALTERNATIVE

This alternative follows the existing Route 57 alignment for the full project length, but differs from the No-Build Alternative in that it makes provisions for capacity improvements which would handle the projected traffic flows. Improvements would consist mainly of roadway widening, traffic signals and signs, channelization, pavement markings and other similar traffic control devices. There would be no changes in the roadway's horizontal alignment or profile.

As a result, as indicated in Figures 8 and 9, the proposed upgrading would consist of widening, from two to four lane width, the segment of the route extending from the end of the present divided highway construction at Suffield Street to West Street, a distance of approximately 3.5 miles. The remainder of the route would remain two lanes wide with minor safety and capacity improvements at higher traffic volume intersections. The existing interchange at Suffield Street would not be modified, since access to westbound Route 57 would still be possible via Cooper, Mill and Springfield Streets.

More substantial capacity improvements would be required for the portion of Route 57 in Southwick center where it is common with Route 10-202. Roadway widening and/or turning lanes would be required at the intersections with Feeding Hills Road (Route 57 from Agawam) and Granville Road (Route 57 from Granville) to adequately accommodate the projected traffic volumes.

The need to widen or relocate the 3.5 mile section of the existing route in Agawam is accentuated by the following factors:

- o traffic flow volumes on the existing route are high and in the near future would exceed the roadway capacity in several locations.

- o the land adjacent to the existing route is almost totally urbanized with residential, commercial and institutional development extending to west of West Street.

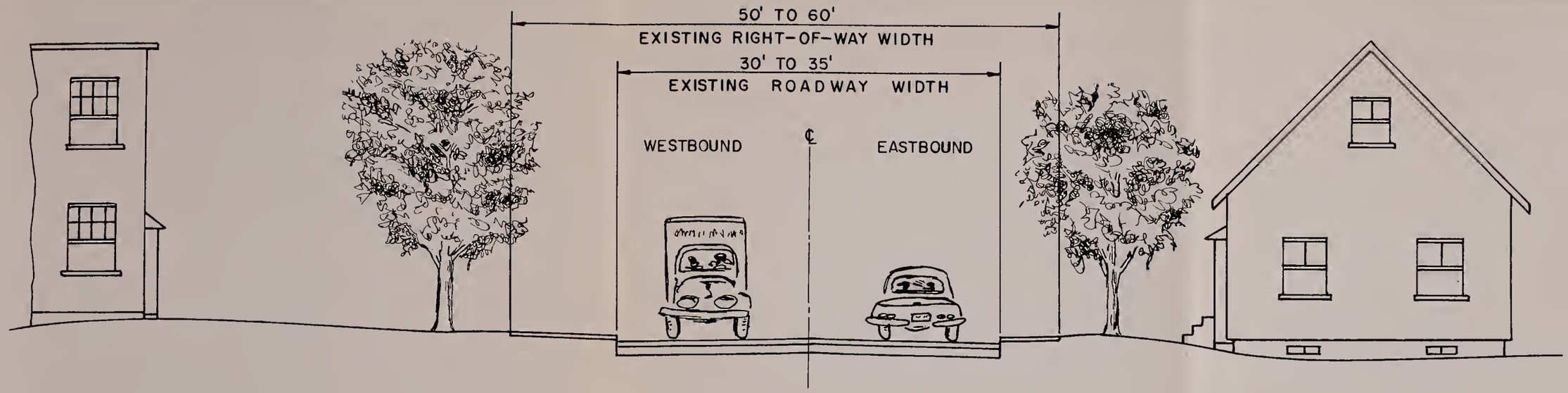
- o 19 local streets intersect or tie-in to Route 57 on the north side of the route, 12 streets intersect or tie-in on the south side. Over 220 curb cuts for residential or commercial driveway access occur on the existing route. All of these access points create potential traffic conflict situations.

- Agawam High School, Agawam Junior High School and Sacred Heart Church and School are located along the existing route with resulting School Zone speed restrictions and pedestrian conflicts.

- the accident rate at several locations along the existing route is approximately twice the statewide average for similar roads.

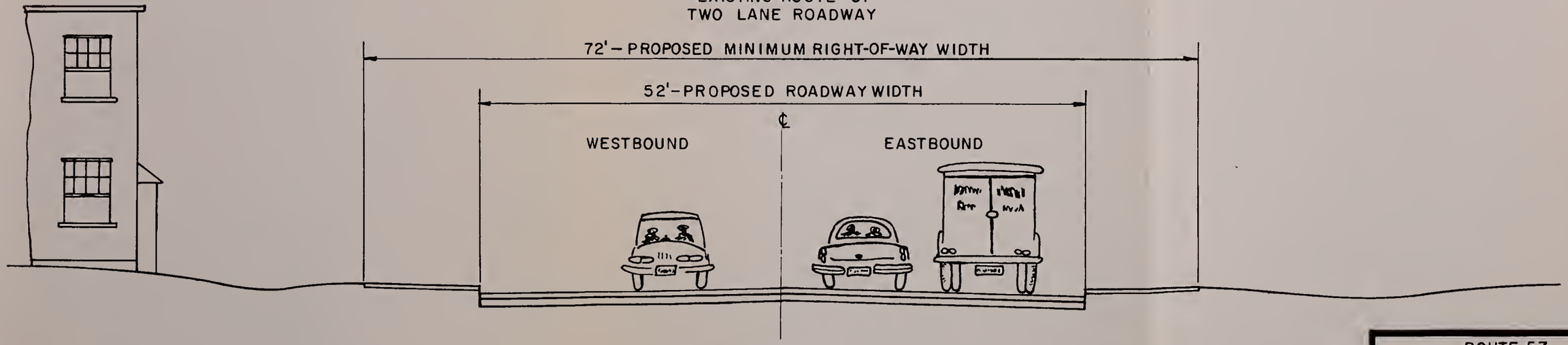
- there are no other east-west through roads in the rapidly developing southwest sector of Agawam.

A roadway widening to a four-lane width would satisfy the capacity requirements, but would not eliminate the unrestricted access and safety problems inherent in the existing route. In addition, due to the highly urbanized nature of the existing corridor, it is not possible to widen the route sufficiently to include breakdown lanes without extensive property takings and major disruption of the community. A taking of 5 to 6 acres of land area would be required to effect the road widening. In addition, due to the decreased set-back distance to existing buildings, the noise levels would be significantly increased, and many property parcels would no longer conform to the zoning regulations of the Town. In order to maintain a minimum set-back of 20 feet, 29 residences and 6 businesses would have to be taken.



TYPICAL SECTION

EXISTING ROUTE 57
TWO LANE ROADWAY



TYPICAL SECTION

UPGRADED EXISTING ROUTE 57 ALTERNATIVE
FOUR LANE ROADWAY

ROUTE 57
SOUTHWICK-AGAWAM

TYPICAL SECTIONS
EXISTING ROUTE
AND
UPGRADED EXIST. ROUTE ALT.

FIGURE 8

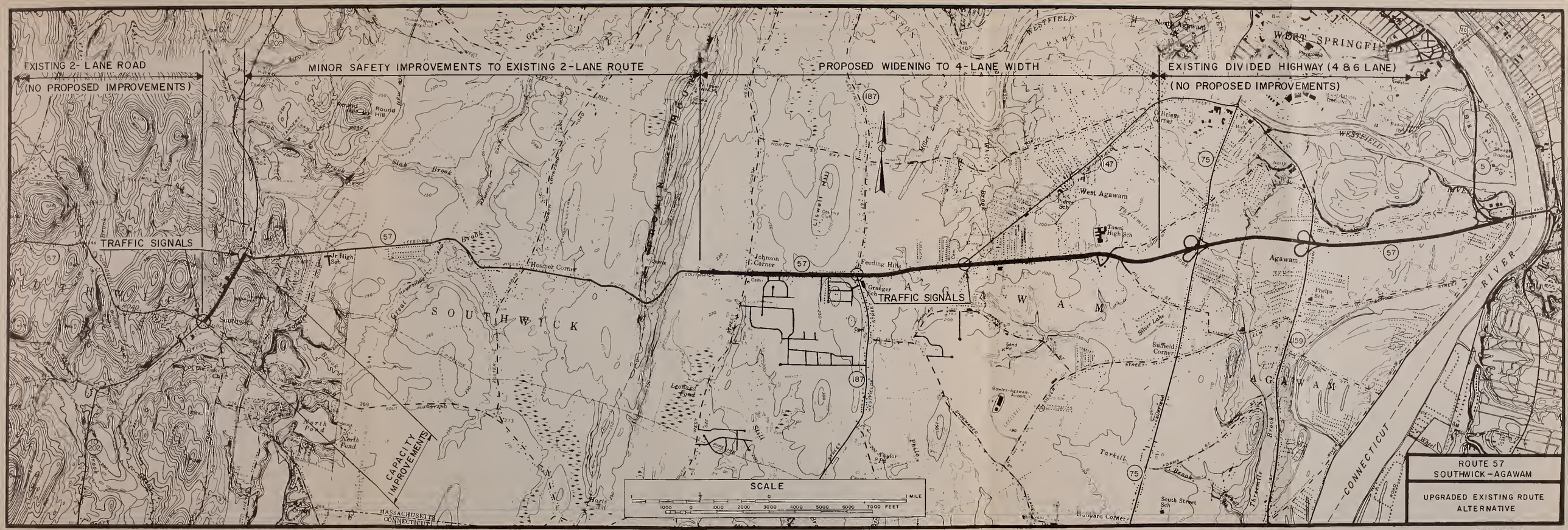

EXISTING 2- LANE ROAD
(NO PROPOSED IMPROVEMENTS)
MINOR SAFETY IMPROVEMENTS TO EXISTING 2-LANE ROUTE
PROPOSED WIDENING TO 4-LANE WIDTH
EXISTING DIVIDED HIGHWAY (4 & 6 LANE)
(NO PROPOSED IMPROVEMENTS)
TRAFFIC SIGNALS
TRAFFIC SIGNALS
CAPACITY IMPROVEMENTS
SOUTHWICK
AGAWAM
WEST SPRINGFIELD
CONNECTICUT RIVER
SCALE
MILE
FEET
ROUTE 57
SOUTHWICK – AGAWAM
UPGRADED EXISTING RDUTE
ALTERNATIVE

FIGURE 9

III.C. PARTIAL ROUTE RELOCATION/SAFETY IMPROVEMENT ALTERNATIVE

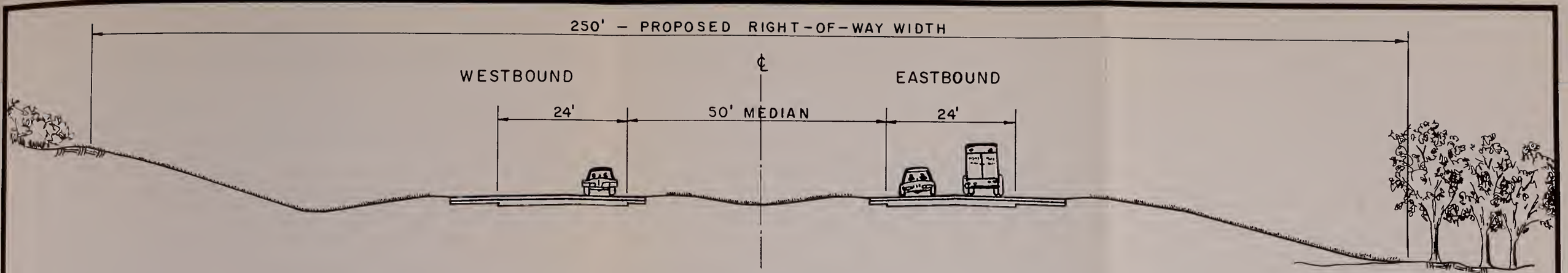
The Partial Route Relocation Alternative, shown in Figure 10 and 11, originates from the evident support for the relocation of Route 57 within the Town of Agawam and the opposition to relocation within the Town of Southwick. This alternative, therefore, attempts to respond to the input of both communities.

The proposed relocation of Route 57 would begin at Suffield Street, where the existing interchange would be modified to provide for movements to and from the west, possibly by converting to a full diamond type interchange. For safety purposes, Route 57 would continue as a four lane divided highway, merging to a two lane access controlled roadway west of South Westfield Street. Crossing under Garden Street and over Shoemaker Lane this alternative would cut through the unused northwest corner of Bowles-Agawam Airport property, while avoiding the proposed Cesan and Rising Street subdivision and St. Anne Golf Course. Proceeding west under South Westfield Street, where interchange access for both east and west movements would be provided, the roadway would run approximately 250' south and parallel to the Hendom Heights neighborhood.

West of Hendom Heights, two alternate alignment options have been considered for the approach to Provin Mountain. Both alternates would intersect with South West Street at grade, allowing traffic movements to both north and south. The preferred southerly approach alignment would cross a larger portion of the Leonard Pond wetland, but would not require any residential displacements. This alignment would also fit in better to the existing mountain side slope terrain and require lower roadway embankments. The alternate, northerly approach alignment would skirt the edge of the wetland resulting in reduced impact to the natural environment. However, it would require the displacement and relocation of six additional single family residences.

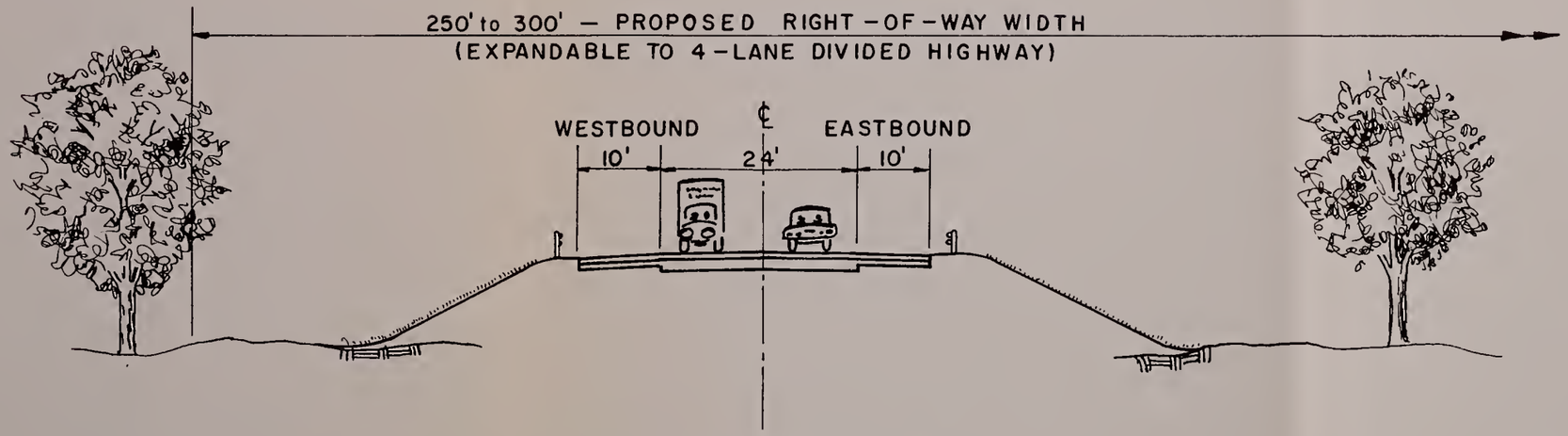
The relocated route would tie into existing Route 57 at the Provin Mountain gap near the Agawam-Southwick town line. An at grade intersection would be developed to connect existing Route 57 (Southwick Street) to the relocated route. The total length of the relocated route would be approximately 4.6 miles. The proposed right-of-way width would be 250' east of West Street and 300' at the Provin Mountain approach. This width would permit an expansion of the route, if warranted in the future, to a four lane divided facility similar to that existing now east of Suffield Street.

Various safety improvements would be considered separately for the remainder of the project area, from the Agawam-Southwick line to the project terminus at Hillside Road. In deference to Southwick's opposition to any re-alignment of existing Route 57, the safety improvements under study would address the identified high traffic volume and high accident locations. Tentative locations identified are Hosmer Corner, Powder Mill Road, including access to and from the Southwick School complex, and the two intersections of Route 10-202 in Southwick. Capacity and safety improvement measures that would be applicable at these locations could involve the removal of sight obstructions, improved roadway lighting, separation of pedestrian/vehicular traffic, the addition of more traffic control devices (e.g. traffic signals, pavement markings, safety signs and channelization islands) and possible widenings of intersection approach roadways to provide turning lanes and/or added capacity. The spot safety and traffic improvements would not be implemented as part of the Route 57 relocation project, but would be included under traffic and safety improvement programs. Traffic improvement projects are currently under way for the two intersections of Route 10-202 in Southwick.



TYPICAL SECTION

BETWEEN GARDEN AND SUFFOLK STREETS



TYPICAL SECTION

BETWEEN SOUTHWICK TOWN LINE AND GARDEN STREET

ROUTE 57
SOUTHWICK–AGAWAM

TYPICAL SECTIONS
PARTIAL ROUTE
RELOCATION ALTERNATIVE

FIGURE 10

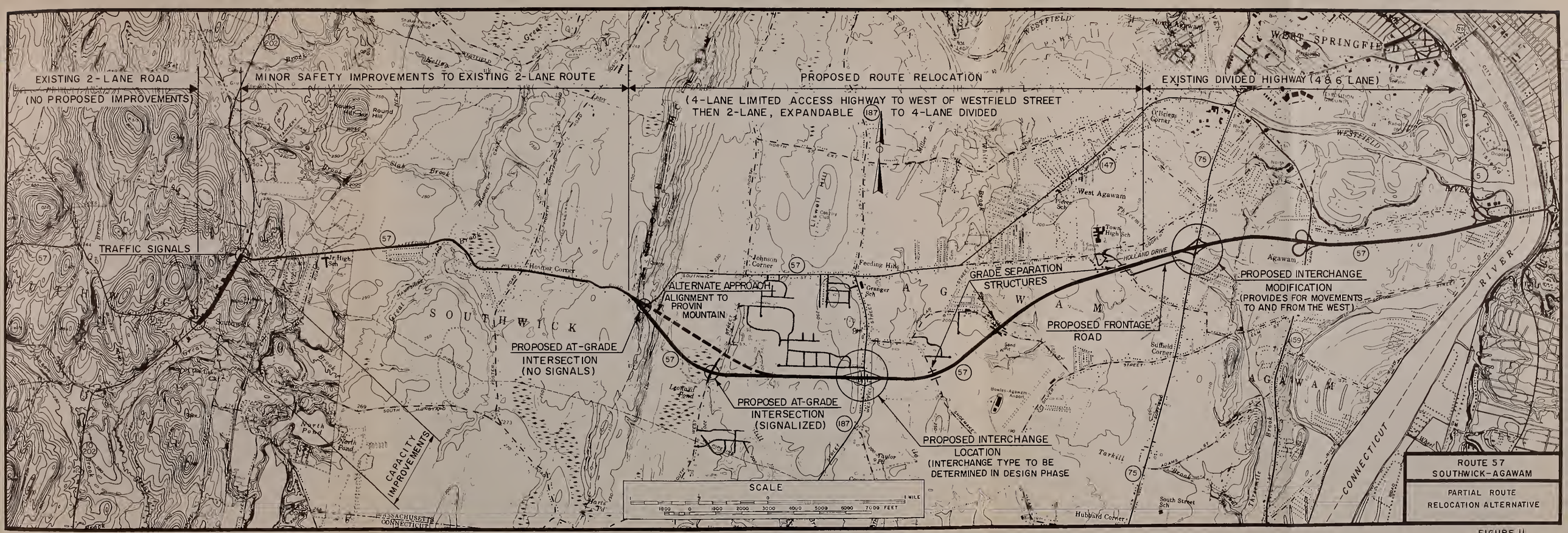

EXISTING 2-LANE ROAD
(NO PROPOSED IMPROVEMENTS)
MINOR SAFETY IMPROVEMENTS TO EXISTING 2-LANE ROUTE
PROPOSED ROUTE RELOCATION
(4-LANE LIMITED ACCESS HIGHWAY TO WEST OF WESTFIELD STREET
THEN 2-LANE, EXPANDABLE TO 4-LANE DIVIDED
EXISTING DIVIDED HIGHWAY (4 & 6 LANE)
TRAFFIC SIGNALS
CAPACITY IMPROVEMENTS
PROPOSED AT-GRADE INTERSECTION (NO SIGNALS)
ALTERNATE APPROACH ALIGNMENT TO PROVIN MOUNTAIN
PROPOSED AT-GRADE INTERSECTION (SIGNALIZED)
GRADE SEPARATION STRUCTURES
PROPOSED FRONTAGE ROAD
PROPOSED INTERCHANGE LOCATION (INTERCHANGE TYPE TO BE DETERMINED IN DESIGN PHASE
PROPOSED INTERCHANGE MODIFICATION (PROVIDES FOR MOVEMENTS TO AND FROM THE WEST)
SCALE
1 MILE
1000 0 1000 2000 3000 4000 5000 6000 7000 FEET
SOUTHWICK
AGAWAM
WEST SPRINGFIELD
WESTFIELD
CONNECTICUT RIVER
MASSACHUSETTS
CONNECTICUT
ROUTE 57
SOUTHWICK-AGAWAM
PARTIAL ROUTE
RELOCATION ALTERNATIVE

FIGURE II

III.D. ALTERNATIVE TRANSPORTATION MODES

Mass transit as a complete substitute to the proposed improvements is not viable. Specific transit routes, however, are feasible and are being incorporated into the study area's transportation system network.

Within the project area, Springfield-Agawam Bus Lines, Inc. currently services northwest Agawam as far as Feeding Hills Center utilizing present Route 57 for its return route to Springfield. Service is offered every hour between 6:20 A.M. - 5:20 P.M.

Various demand responsive transit services are presently available to the elderly and handicapped in both communities and are sponsored through the applicable local, regional, state and federal programs.

A recent study entitled Latent Demand for Transit prepared by the Lower Pioneer Valley Regional Planning Commission recommends transit routes to service the communities of the Lower Pioneer Valley. Agawam would be serviced as part of the Springfield Subarea under recommendation C-1 coming over the South End Bridge following a route that traverses Meadow, Main, Elm, Suffield, Cooper, Walnut, Maple Streets to Bridge Street and over into West Springfield. The service would be provided to Springfield bound commuters, employment centers on Main Street and shopping areas at Suffield and Main Streets. In Southwick a rural transit service predominantly designed to meet the needs of the elderly and handicapped has been recommended as part of the Westfield Subarea: Route B-3 would traverse Route 10 to Route 57 to Tolland Center and return. Route B-4 would go from Westfield via Route 10 into Southwick to Route 57 East to Powder Mill Road to Depot Road to College Highway South to Hillside Road to Route 57 to Loomis Street to Westfield.

Another recent study entitled Fringe Parking For Transit In The Lower Pioneer Valley Region also prepared by the Lower Pioneer Valley Regional Planning Commission for the Pioneer Valley Transit Authority and the Cities and Towns of the Lower Pioneer Valley Region analyzes potential fringe parking sites within specific transit corridors. The Route 57 project corridor would be directly served by "Corridor D, Southwick-Springfield." Under this proposal express transit service is designed to serve peak hour trips to Springfield employment centers. The route would begin in Southwick Center to the intersection of Route 57 and Route 10 & 202. Following Route 57 into Agawam service would be nonstop to Springfield with the only diversion being a selected stop and ride site. Two locations are presently under consideration. The first

is the shopping area on Suffield Street in Agawam, however the owner has objected to this. The second is the land within the State Highway layout at the intersection of Route 57 and Suffield Street.

It should be noted that during 1978-1979 the Lower Pioneer Valley Regional Planning Commission intends to evaluate public transit services in Agawam to ascertain whether they are operating effectively and also whether higher levels of service may be warranted in certain segments of the Town.

SECTION IV
ENVIRONMENTAL ASSESSMENT OF THE PROPOSED PROJECT

IV.A. DESIGN FEATURES

IV.A.1. Roadway Cross-Sections

The existing Route 57 roadway cross-section width of 30' to 35' can be utilized for two lane operation only - one lane in each direction. At higher volume intersections this restriction causes capacity deficiencies and delays.

The Relocated Route Alternative will involve all new construction in Agawam. A four lane divided highway, consisting of two 24-foot roadways, 10' right shoulders and 4' left shoulders, will be constructed at the east end of the project. The roadway cross-section will be merged into a single two lane, two-way roadway (consisting of two 12-foot lanes and 10' shoulders on each side) west of South Westfield Street. Since the relocated route will be a controlled access facility, sidewalks will not be included.

IV.A.2. Geometric Design Features

The existing Route 57 horizontal alignment is generally straight and direct, except at the Provin Mountain approach and gap, in the vicinity of the Great Brook and at the west end of the study area near Bugbee and Hillside Roads, where sharp horizontal curves occur. Poor intersection approach alignment conditions also exist at the intersections with Mill-Cooper Street, Springfield Street and Westfield Street. As a result uniform travel and speed characteristics cannot be maintained and the intersections cited above experience high accident rates.

The vertical alignment of the existing route is generally good with few poor sight distance locations. The Provin Mountain approach has an undesirable 7.0% grade, but at no other location do the grades exceed 5.0%.

The Partial Route Relocation Alternative will provide geometric design features consistent with a 55 mph speed limit. Minimum horizontal curve radius will be 2,600' and the maximum grade will be 3.0%, except at the approach to Provin Mountain where the grade may reach 4.5%. Grade separation structures will be included at major cross road locations. Full interchanges will be provided at Westfield Street and Suffield Street. Full access control will be maintained throughout the length of route relocation. The geometric design features of all three alternatives considered are listed in Table 6.

TABLE 6

GEOMETRIC DESIGN FEATURES

ROUTE 57 STUDY ALTERNATIVES

Route 10-202, Southwick to Mill St., Agawam

Design Feature	Alternative		
	Existing Route	Upgraded Existing Route*	Relocated Route*
1. Roadway Width (including shoulders)	30' to 35'	52'	44' (single rdwy 2@38'(divided rd
2. Right-of-Way Width	50' to 60'	72' min.	250' to 300'
3. Access Control	No	No	Yes
4. Grade Separation Structures	No	No	Yes
5. Minimum Horizontal Curve Radius	480'±	480'±	2,600'
6. Maximum Grade	7.0%±	7.0%±	3.0% (typ.
7. Operating Speed (MPH)	30 to 45	30 to 45	55

* The design features indicated apply only to locations where the route upgrading or relocation are to be implemented. In all other areas the design features of the existing route will generally apply.

** The relocated route approach to Provin Mountain may require a steeper grade (as high as 4.5%).

IV.B. TRAFFIC SERVICE AND SAFETY

IV.B.1. Level of Service Concept (Figure 12)

Traffic service is measured by the volume of traffic carried by a particular segment of a roadway network relative to the physical capacity of that segment. Physical capacity can be defined as the maximum number of vehicles which can be accommodated by a roadway or intersection during a given period of time, under prevailing conditions. "Prevailing" conditions include such factors as signal phasing, the degree of interference from other vehicles and pedestrians, composition of traffic lanes or approach pavement and presence of lateral obstructions in close proximity to the roadway. In general it can be stated that as traffic volumes increase and approach the capacity of the roadway, operating speeds generally decrease and traffic congestion increases.

The level of service concept is used in this Negative Declaration to describe the existing and projected operating characteristics of the impacted streets. The definition and description of the various service levels are presented in this section.

The level of service is defined as the composite effect of speed and traveltime, traffic interruptions, freedom to maneuver, safety, driving comfort and convenience, and operating costs. There are six levels of service A through F designated which are a qualitative measure of operating conditions from excellent to intolerable.

In urbanized areas the level of service would be a function of the intersection capacities with the physical makeup of the roadway, parking conditions, peak hour traffic volumes, turning movements, truck and bus traffic and the traffic control measures all taken into consideration.

- Level A- Represents free flow. Driver is concerned only about the chance of being stopped on a red signal, otherwise, movement is unrestricted.

- Level B- Represents stable operation. Many drivers begin to feel somewhat restricted within platoons of vehicles.

- Level C- Stable operation continues. Occasionally, drivers may be retained by more than one complete signal cycle, and backups may occur behind turning vehicles. Most drivers feel somewhat restricted, but not objectionably so.

A

D

B

E

C

F

LEVEL OF SERVICE CONCEPT

FIG. I

- o Level D- Encompasses a zone of increasing restriction or approaching instability during peak fifteen minutes. Frequently drivers may wait more than one complete signal cycle; individual delays may be substantial for short periods during the peak hour. However, recurring backups are not excessive and are cleared up during the lighter demand signal cycles.

- o Level E- Volume equals capacity of this service level. It represents the greatest moving volume an intersection can accommodate. Drivers are faced with long queues and frequent delays.

- o Level F- This level of service represents jammed traffic conditions. Traffic flow breaks down on more than one approach to an intersection, blockages occur often, preventing traffic movement on cross streets. Hence, volumes carried are unpredictable, and drivers are faced with prolonged stop-and-go conditions.

IV.B.2. Existing Traffic Service Characteristics

Existing traffic volume counts for the various roadway links in the Route 57 study area were recorded by the Massachusetts Department of Public Works in December, 1976; February, 1975 and on several occasions during the summer in 1974. Supplemental intersection peak hour turning movement and vehicle classification counts were taken December 13 through 16, 1976. The two-way average daily traffic volumes (ADT) for 1976 are summarized in Figures 2 and 13. Design factors for obtaining peak hour flow volumes and directional distribution percentages are indicated in Figure 13.

Peak hour traffic analysis of thirteen Route 57 intersections and connecting roadway links within the study area indicates that existing Route 57 currently operates at a generally acceptable Level of Service (See Table 7), but congestion conditions are being approached in Agawam on the roadway segment between Mill and Westfield Streets and in Southwick at the two College Highway (Route 10-202) intersections. This is particularly borne out by the substantially higher than average accident rates experienced at these locations.

Traffic improvements are currently planned or under way for the College Highway (Route 10-202) intersection with Granville Road

TABLE 7

INTERSECTION LEVEL OF SERVICE ANALYSIS

Location	Level of Service			
	1976 P.M. Peak Existing Streets	1995 P.M. Peak on Existing System	1995 P.M. Peak on Upgraded Route 57	1995 P.M. Peak on Relocated Route 57
A - Granville Road (57) and Hillside Road	A	A	A	A
B - College Highway (10 & 202) and Granville Road (57)	B	C	C (2-lane) B (4-lane)	D (2-lane) C (4-lane)
C - College Highway (10 & 202) and Feeding Hills Road (57)	C	D	D (2-lane) C (4-lane)	E (2-lane) C (4-lane)
D - Feeding Hills Road (57) and Powder Mill Road	A	B	B	B
E - Feeding Hills Road (57) and North Longyard Road	A	B	B	C
F - Southwick Street (57) and West Street	B	C	B (4-lane)	A (2-lane)
G - Southwick Street (57) and Westfield Street (187)	C	F	C (4-lane)	C
H - Southwick Street (57) and Springfield Street (147)	C	E	C	C
I - Mill Street (57) and Poplar Street	B	D	B	B
J - Mill Street (57) and Cooper Street	C	E	C	B
K - Mill Street and 57 Expressway	B	C	B	---
L - Suffield Street (75) and Cooper Street	B	C	C	C
M - Suffield Street (75) and Mill Street	B	D	D	B
N - Relocated 57 and Southwick Street	---	---	---	B
P - Relocated 57 and South West Street	---	---	---	C (2-lane) B (4-lane)
Q - Westfield Street and the Westbound Ramps from Relocated 57	---	---	---	B
R - Westfield Street and the Eastbound Ramps from Relocated 57	---	---	---	B
S - Westfield Street and Shoemaker Lane	A	B	B	C

and Depot Street. Similar improvements are currently under consideration along Route 57 in Agawam to alleviate the current traffic deficiencies at four intersections. These locations are:

1. The intersection of Route 57, South West and North West Streets
2. The intersection of Route 57, South Westfield and North Westfield Streets
3. The intersection of Route 57 & Springfield Street
4. The intersection of Route 57 with Cooper Street

IV.B.3. Traffic Flow Volume Projections and Analysis

The projected 1995 average daily traffic volumes for the Route 57 project were developed by the Massachusetts Department of Public Works and modified by the Consultant for the present road configuration. Projections for local roads and the remainder of the study area network were developed by the Consultant on the basis of data supplied by the MDPW and traffic counts obtained in the project area.

Figure 13 presents the existing and projected traffic volumes for the area roadways without the route relocation. These volumes apply for the No-Build and Upgraded Existing Route Alternatives. Figure 14 shows the projected traffic volume distribution for the Partial Route Relocation Alternative. Peak hour, directional distribution and truck percentage factors are indicated on both figures.

Intersection and roadway link capacity analysis of the projected 1995 traffic volumes, summarized in Table 7, indicates that, under the No-Build Alternative, during the peak hour periods traffic flow conditions on Route 57 in Agawam would become intolerable. In Southwick the operating conditions would deteriorate somewhat, but would generally remain at acceptable service levels.

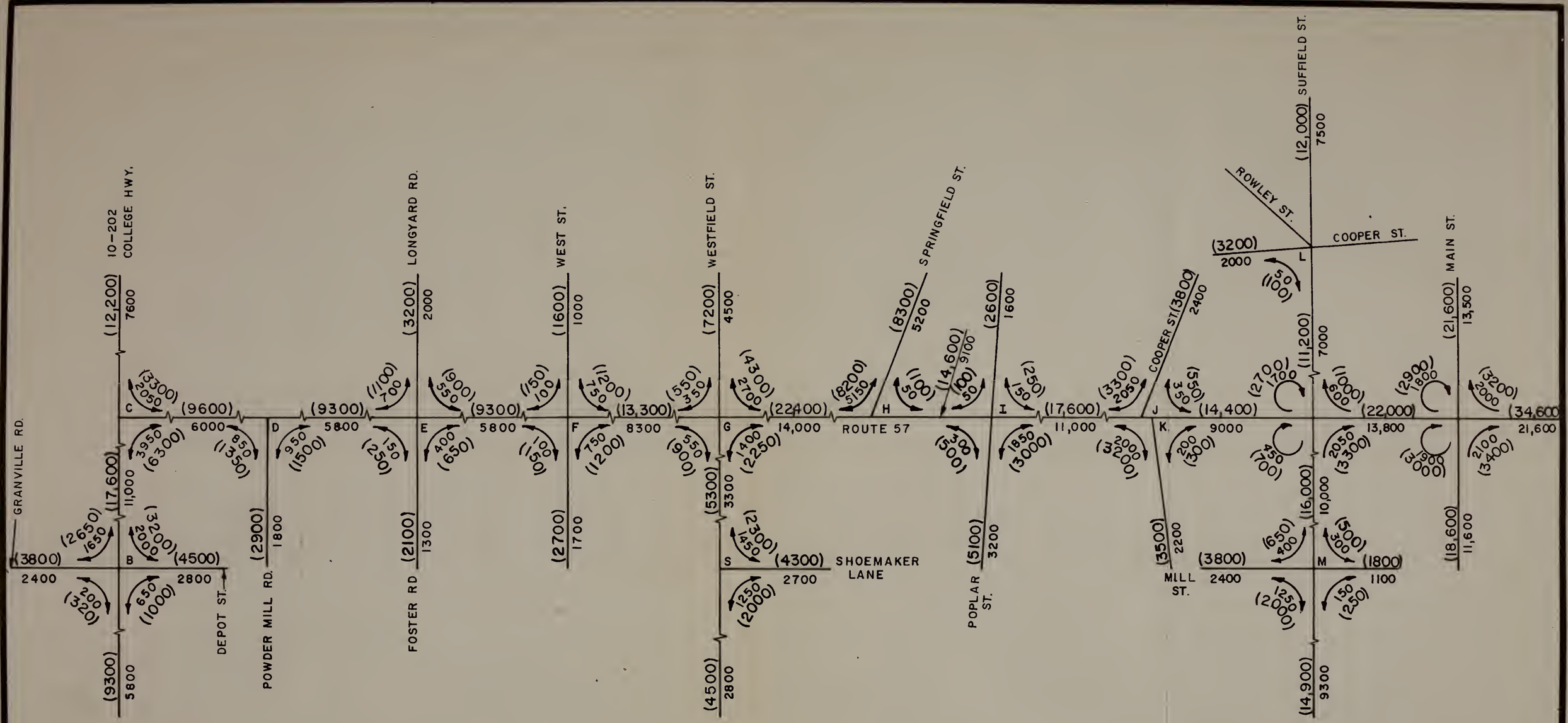
On the basis of the above findings, the Upgraded Existing Route Alternative would propose the widening of existing Route 57 to a four-lane width from the end of present divided construction at Suffield Street to west of West Street. Intersection capacity analysis performed on the basis of the revised pavement width reveals that the 1995 levels of service on the upgraded route would be similar to those occuring now on the existing route. This would indicate adequate capacity for the projected traffic volumes, but, since no changes would be made to the access control characteristics, the higher than average accident rate experience on this section of the roadway would be expected to continue.

The Partial Route Relocation alternative is expected to divert a significant portion of the east-west through traffic from the existing Route 57 in Agawam. Traffic from the rapidly developing southwest sector of the Town will also be served by the relocated route. Existing land use patterns in the Feeding Hills area, however, will continue to be served by the existing route. The existing route will remain a local collector-arterial street, but will carry lower traffic volumes at service levels of C or higher. With full access control, the relocated Route 57 will be adequate to carry the projected 1995 traffic volumes at B to C service levels.

Higher traffic volumes will occur on Suffield and Westfield Streets in the vicinity of the proposed interchanges. A new frontage road will be required from Suffield Street to Mill Street to provide a more direct distribution route for the Mill Street traffic heading to and from the Suffield Street interchange. Capacity improvements (turning lane and/or pavement widening) at the two College Highway intersections in Southwick will also be required to achieve acceptable traffic service levels at those locations.

IV.B.4. Safety

Figure 2 identifies six Route 57 locations within the project study area which have high accident rate experience. These include the two College Highway intersections in Southwick and the Route 57 intersections with Westfield, Springfield, Line and Cooper Streets in Agawam. Table 8 compares the accident involvement rate for several segments of Route 57 to statewide average accident rates classified as rural-primary two lane roads. Accident involvement rate is defined as the number of accidents per million-vehicle-miles. It is valuable because variations in traffic volumes and roadway lengths are taken into account. This permits the relative performance along a section of highway to be compared with state-wide averages. Of particular concern is the segment of the route in Agawam between Mill and Westfield Streets. In this segment the accident rate experience is almost twice the statewide average for similar roads (5.65 accidents per million vehicle miles vs. a statewide average rate of 3.16 accidents/mvm). Under the No-Build Alternative the accident rate would be expected to continue increasing. Under the Upgraded Existing Route Alternative, the accident rate would be expected to stabilize, but a reduction would not be expected, since the general roadway characteristics and access control would remain unchanged. The Partial Route Relocation Alternative will produce significant safety improvements in Agawam, but a slight deterioration in Southwick due to the higher traffic volumes expected to be attracted by the relocated route.



DESIGN FACTORS

	ROUTE 57	ROUTE 10-202	CROSS STREETS
K =	9.0%	8.5 to 9.3%	9.0 to 12.0%
D =	65 to 75%	55 to 60%	55 to 75%
$T_{AV.}$ =	4.0%	5.0%	2.0 to 5.0%
T_{PK} =	2.0%	4.0%	0.0 to 3.0%

LEGEND

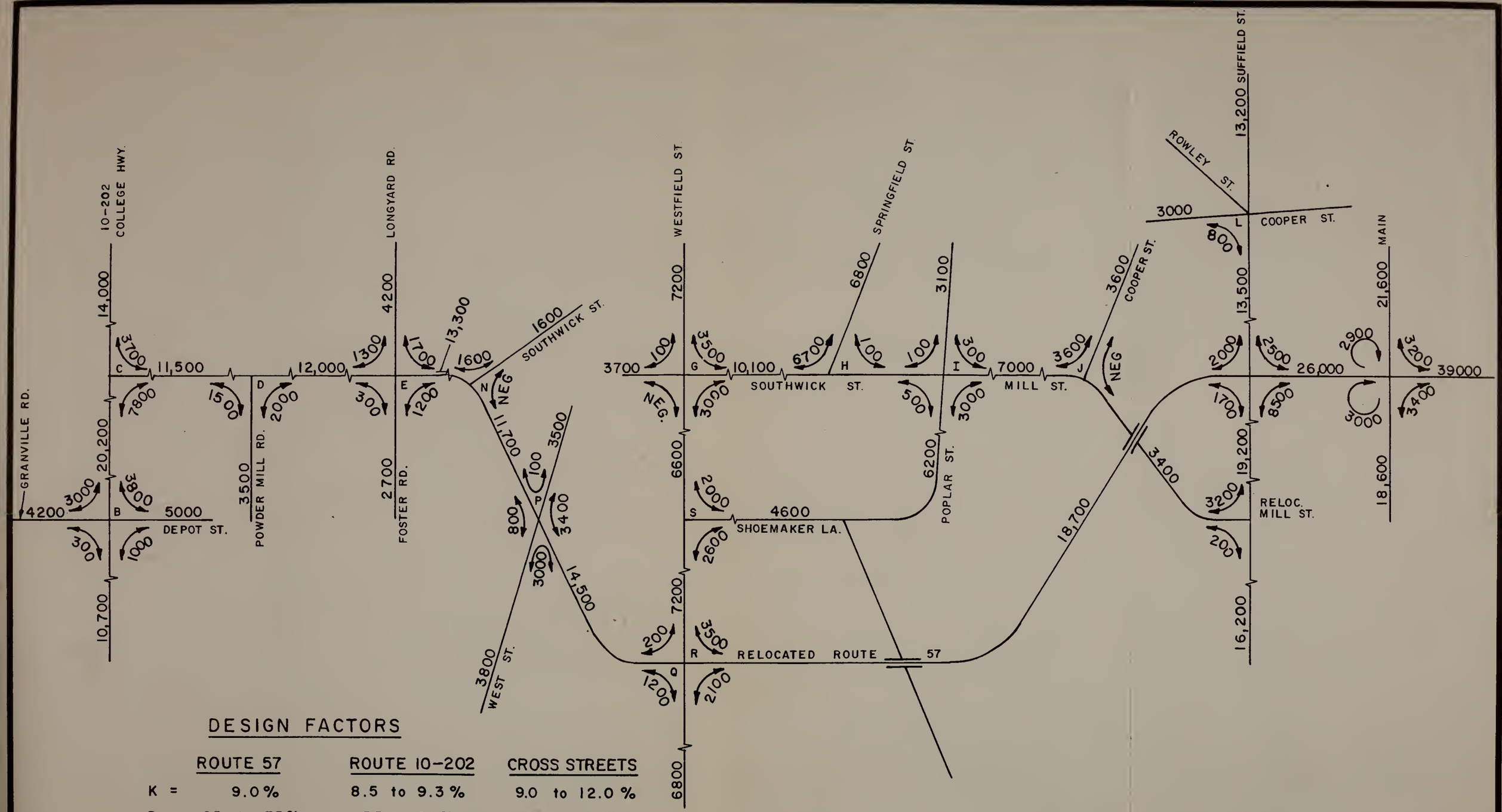
0000 – 1976 AVERAGE DAILY TRAFFIC VOLUME (A.D.T.)

(0000) – 1995 A.D.T.

ROUTE 57
SOUTHWICK–AGAWAM

1976-1995 TRAFFIC VOLUMES
UPGRADED EXISTING ROUTE ALTERNATIVE

FIGURE 13



DESIGN FACTORS

	ROUTE 57	ROUTE 10-202	CROSS STREETS
K =	9.0%	8.5 to 9.3%	9.0 to 12.0%
D =	65 to 75%	55 to 60%	55 to 75%
$T_{AV.}$ =	4.0%	5.0%	2.0 to 5.0%
$T_{PK.}$ =	2.0%	4.0%	0.0 to 3.0%

LEGEND

0000 – 1995 AVERAGE DAILY TRAFFIC VOLUME (A.D.T.)

ROUTE 57
SOUTHWICK–AGAWAM

1995 TRAFFIC VOLUMES

PARTIAL ROUTE RELOCATION ALTERNATIVE

FIGURE 14

TABLE 8

ACCIDENT INVOLVEMENT RATE

Road Segment	Length (miles)	Annual Volume (Million veh.)	No. Accidents	Accident Involvement Rate	Statewide Average
Route 57/Agawam (Cooper St. to Westfield St.)	1.80	8.21	47	5.65	3.16
Route 57/Agawam (Westfield St. to Town Line)	1.65	4.22	7	1.66	3.16
Route 57/Southwick (Rte. 10-202- Town Line)	3.00	6.57	18	2.74	3.16
Route 10-202/Southwick (Bugbee Rd - Tannery Rd.)	2.65	7.74	48	6.20	3.16

Data Source: 1972 Statistics from Agawam and Southwick Police Departments

IV.C. SOCIAL AND ECONOMIC IMPACTS

IV.C.1. Neighborhood Impacts

Many homes and institutions abut existing Route 57 and are familiar with its inherent noise and air pollution. A decrease in the amount of traffic utilizing the present roadway will lower these levels of pollution.

The proposed project will not subject any existing residences to levels exceeding current federal noise or air pollution standards.

The new roadway will have a negative impact regarding the required displacement of families and businesses and will further delineate the residential area of southwest Agawam. A total of fourteen homes and eight businesses will be taken by the preferred alternative. Four of these eight businesses are operated from within homes that will be displaced.* These takings occur where the alignment crosses Mill Street, Garden Street, Shoemaker Lane, and South Westfield Street. The greatest concentration of takings occur at Garden Street and South Westfield Street with both having eight residential/business displacements. The areas impacted are neither traditional nor established neighborhoods per se, rather the areas effected tend to be a mix of single family homes and small commercial structures abutting the existing two lane streets.

Summary of Property Takings and Displacements

Route Segment:	*Business	Residential	Property Parcels Affected
1. Route 57 to Mill St.	0	0	3
2. Mill St. to Garden St.	2	4	15
3. Garden St. to Westfield St.	5	7	21
4. Westfield St. to West St.	1	3	7
5. West St. to Southwick town line	0	0	6
	8	14	52

IV.C.2. Agricultural Land Impacted

Two active agricultural properties will be impacted by the proposed roadway. The first is located off Twin Oaks Road with approximately six of the total fifteen acres being taken by the proposed project. For further details of this site refer to Appendix A, Conceptual Stage Relocation Plan. The second agricultural land effected is off South Westfield Street. While

the present owners do not farm themselves, they do rent out four of their twenty acres for such use. The proposed facility would require a taking of approximately two of these four acres.

Undoubtedly there are other fertile lands, once agriculturally active and still potentially cultivable, that will be effected by the roadway. These lands constitute a good deal of the open space in southwest Agawam and together with other actively used agricultural properties will face increased development pressures as the town continues to grow.

Less directly, the agricultural uses of Southwick, particularly the large tracts in East Southwick, will be more accessible to the Springfield area and accordingly will face more development prospectives.

IV.C.3. Impact on Pre-Historic Archaeological Resources

A professional archaeologist has conducted a preliminary site investigation for the project area and has identified several areas of potential sensitivity. The archaeologist will perform intensive archaeological surveys where necessary. If sites worthy of excavation or preservation are located within the construction right-of-way, suitable mitigation measures will be taken in accordance with Federal and State requirements. This will be done in cooperation with the State Archaeologist and the State Historic Preservation Officer.

If any archaeological or paleontological remains are found during construction, all work in the area will be suspended and the State Archaeologist and the State Historic Preservation Officer will be notified. Appropriate Federal and State requirements will be satisfied before construction is allowed to proceed.

IV.C.4. Economic Impacts

The proposed Partial Route Relocation Alternative would result in an annual tax revenue loss of approximately $23,000 to Agawam.

In light of the present and projected growth indicators for both communities it appears that the proposed action will serve as an additional inducement toward their further development. The prevailing trend of converting agricultural lands for residential developments, especially with some of the larger corporately owned properties, appears as if it will continue unabated, with or without the Relocated Route 57. The new roadway, however, will undoubtedly act as a catalyst to this anticipated growth, particularly in the Feeding Hills area.

Feeding Hills constitutes the fastest growing population area in Agawam and the pressure to accomodate local shopping needs through commercial expansion is increasing. While the proposed project will divert a significant amount of thru traffic from the present Route 57, substantial improvements will be necessary on the existing roadway before any commercial expansion may occur.

As with many other communities Agawam has been receptive to the relative benefit of industrial settlement. Industry continues to contribute significantly to the Agawam tax base. In an effort to support this desirable industrial growth the town has designated the Agawam-Bowles Airport as the site for its Industrial Park. Recent efforts to promote industry at this location have been inconsistent. The Route Relocation Alternative will provide better access to this area and will have the potential of opening it up to industrial development. However as previously discussed many industrial parks, both in the region and elsewhere have not successfully attracted new industrial development despite new utility systems and improved transportation access.

IV.D. IMPACTS TO AIR QUALITY

IV.D.1. Air Quality Synopsis

A mesoscale and microscale analysis was performed for the three primary alternates of this project -- No-Build, Upgrading Existing Route and Partial Route Relocation. The analysis procedures are contained in the publication "Fundamentals of Air Quality" and their use was approved by both the Massachusetts Department of Public Works and the Massachusetts Department of Environmental Quality Engineering.

The mesoscale analysis consisted of calculating the total pollutant burdens of carbon monoxide (CO), hydrocarbons (HC) and nitrogen oxides (NO_x) for the project study area. Each of the three alternates were considered separately in the analysis. Table 9 summarizes the total vehicle emissions (total pollutant burdens) for the years 1976, 1985 and 1995. The results indicate that the total pollutant burden, for the three pollutants investigated, would decrease in the future. The decrease will be due almost entirely to the federal emission standards that apply to all new motor vehicles.

In the microscale analysis, CO concentrations were estimated at seven locations (See Figure 15) for each alternate, utilizing a nomograph procedure based on the CALINE - 2 Model (California Line Source Model). The CO concentrations for the seven selected sites are summarized in Tables 10 and 11. Table 10 denotes the maximum annual one-hour concentrations for each alternate for a range of distances from the roadway for the years 1976, 1980, and 1995. Table 11 differs from Table 10 in that the concentrations given are for the maximum eight-hours of the year rather than maximum one-hour of the year.

The National Ambient Air Quality Standards (NAAQS) for carbon monoxide have been established by the Federal Government as 35 ppm, maximum one-hour concentration, and 9 ppm, maximum eight-hour concentration, both of which are not to be exceeded more than once per year.

Comparing the values in Table 10 to the NAAQS for carbon monoxide it is apparent that there would be no violations of the one-hour standards. The highest one-hour concentrations would occur at Location Number 2 for the "No-Build" Alternate.

Considering the predicted average eight-hour concentrations given in Table 11, it is noted that at Location Number 2 the NAAQS would be exceeded under the "No-Build" Alternate. The violations

TABLE 9

TOTAL VEHICLE EMISSIONS - (ANNUAL)

ALTERNATE	YEAR											
	1976 (Existing)				1985				1995			
	Total Vehicle Miles (Annual)	Total Vehicle Emissions (Tons/Year)			Total Vehicle Miles (Annual)	Total Vehicle Emissions (Tons/Year)			Total Vehicle Miles (Annual)	Total Vehicle Emissions (Tons/Year)		
		CO	HC	NO_x		CO	HC	NO_x		CO	HC	NO_x
No-Build	72,316,720	4,351	638	383	92,577,140	1,602	275	245	115,970,355	1,444	243	256
Upgrading Existing	-	-	-	-	92,577,140	1,602	275	245	115,970,355	1,444	243	256
Partial Route Relocation	-	-	-	-	109,038,640	1,887	324	288	137,515,930	1,712	288	303

TABLE 10

1-HOUR CARBON MONOXIDE CONCENTRATIONS

(Parts Per Million)

ALTERNATE: NO-BUILD

Location	Year	1976					1980					1995				
	Distance from Roadway (ft.)	25	50	100	300	1000	25	50	100	300	1000	25	50	100	300	1000
1		11.0	9.2	6.4	1.4	1.1	12.3	10.3	7.2	1.5	1.1	9.4	7.9	5.6	1.4	1.1
2		19.6	16.3	11.1	1.8	1.2	21.6	17.9	12.2	1.9	1.2	15.7	13.0	9.0	1.6	1.1
2a		7.3	6.2	4.4	1.3	1.0	6.7	5.7	4.1	1.2	1.0	4.1	3.6	2.7	1.1	1.0
3		14.2	11.9	8.2	1.6	1.1	13.2	11.0	7.6	1.5	1.1	10.0	8.4	5.9	1.4	1.1
4		3.4	3.0	2.3	1.1	1.0	2.8	2.5	2.0	1.1	1.0	2.1	1.9	1.6	1.0	1.0
5		2.8	2.5	2.0	1.0	1.0	2.4	2.2	1.8	1.1	1.0	1.8	1.7	1.5	1.0	1.0
6		5.9	5.0	3.7	1.2	1.0	4.8	4.2	3.1	1.2	1.0	3.5	3.0	2.3	1.1	1.0

ALTERNATE: UPGRADING EXISTING ROUTE 57

1		-	-	-	-	-	8.7	7.3	5.2	1.3	1.1	5.0	4.3	3.2	1.2	1.0
2		-	-	-	-	-	12.5	10.5	7.3	1.5	1.1	6.9	5.8	4.2	1.2	1.0
2a		-	-	-	-	-	6.3	5.3	3.9	1.2	1.0	3.8	3.3	2.5	1.1	1.0
3		-	-	-	-	-	11.0	9.3	6.5	1.4	1.1	6.2	5.3	3.9	1.2	1.0
4		-	-	-	-	-	2.8	2.5	2.0	1.1	1.0	2.1	1.9	1.6	1.0	1.0
5		-	-	-	-	-	2.4	2.2	1.8	1.1	1.0	1.8	1.7	1.5	1.0	1.0
6		-	-	-	-	-	4.9	4.2	3.1	1.2	1.0	3.2	2.8	2.2	1.1	1.0

ALTERNATE: PARTIAL ROUTE 57 RELOCATION

1		-	-	-	-	-	3.4	3.0	2.3	1.1	1.0	2.5	2.3	1.8	1.1	1.0
2		-	-	-	-	-	6.6	5.6	4.1	1.2	1.0	3.9	3.4	2.6	1.1	1.0
2a		-	-	-	-	-	2.7	2.4	1.9	1.1	1.0	2.0	1.8	1.6	1.0	1.0
3		-	-	-	-	-	12.6	10.5	7.3	1.5	1.1	6.8	5.8	4.2	1.2	1.0
4		-	-	-	-	-	7.4	6.3	4.5	1.3	1.1	4.5	3.8	2.9	1.2	1.0
5		-	-	-	-	-	7.3	6.2	4.4	1.2	1.1	4.7	4.0	3.0	1.2	1.0
6		-	-	-	-	-	6.3	5.4	3.9	1.2	1.1	3.7	3.2	2.5	1.1	1.0

NOTE: Massachusetts and Federal maximum ambient one-hour CO concentration -- 35 ppm.

TABLE 11

8-HOUR CARBON MONOXIDE CONCENTRATIONS

(Parts Per Million)

ALTERNATE: NO-BUILD

Location	Year	1976					1980					1995				
	Distance from Roadway (ft.)	25	50	100	300	1000	25	50	100	300	1000	25	50	100	300	1000
1		5.7	4.9	3.6	1.2	1.0	6.4	5.4	3.9	1.2	1.0	5.0	4.3	3.2	1.2	1.0
2		9.8	8.2	5.8	1.4	1.1	10.7	9.0	6.3	1.4	1.1	7.9	6.7	4.8	1.3	1.1
2a		4.0	3.4	2.6	1.1	1.0	3.7	3.2	2.5	1.1	1.0	2.5	2.2	1.8	1.1	1.0
3		7.4	6.3	4.5	1.3	1.0	6.9	5.9	4.2	1.3	1.0	5.3	4.6	3.4	1.2	1.0
4		2.1	1.9	1.6	1.0	1.0	1.9	1.7	1.5	1.0	1.0	1.5	1.4	1.3	1.0	1.0
5		1.8	1.7	1.5	1.0	1.0	1.7	1.6	1.4	1.0	1.0	1.4	1.3	1.2	1.0	1.0
6		3.4	2.9	2.3	1.1	1.0	2.8	2.5	2.0	1.1	1.0	2.2	2.0	1.7	1.1	1.0

ALTERNATE: UPGRADING EXISTING ROUTE 57

1		-	-	-	-	-	4.6	4.0	3.0	1.2	1.0	2.9	2.6	2.0	1.1	1.0
2		-	-	-	-	-	6.4	5.5	4.0	1.2	1.0	3.8	3.3	2.5	1.1	1.0
2a		-	-	-	-	-	3.5	3.1	2.4	1.1	1.0	2.3	2.1	1.7	1.1	1.0
3		-	-	-	-	-	5.9	5.0	3.7	1.2	1.0	3.5	3.1	2.4	1.1	1.0
4		-	-	-	-	-	1.9	1.7	1.5	1.0	1.0	1.5	1.4	1.3	1.0	1.0
5		-	-	-	-	-	1.7	1.6	1.4	1.0	1.0	1.4	1.3	1.2	1.0	1.0
6		-	-	-	-	-	2.9	2.5	2.0	1.1	1.0	2.1	1.9	1.6	1.0	1.0

ALTERNATE: PARTIAL ROUTE 57 RELOCATION

1		-	-	-	-	-	2.2	1.9	1.6	1.1	1.0	1.7	1.6	1.4	1.0	1.0
2		-	-	-	-	-	3.7	3.2	2.4	1.1	1.0	2.4	2.2	1.7	1.1	1.0
2a		-	-	-	-	-	1.8	1.6	1.4	1.0	1.0	1.5	1.4	1.3	1.0	1.0
3		-	-	-	-	-	6.6	5.6	4.0	1.2	1.0	3.8	3.3	2.5	1.1	1.0
4		-	-	-	-	-	4.0	3.5	2.7	1.1	1.0	2.6	2.3	1.9	1.1	1.0
5		-	-	-	-	-	4.0	3.4	2.6	1.1	1.0	2.7	2.4	1.9	1.1	1.0
6		-	-	-	-	-	3.6	3.1	2.4	1.1	1.0	2.3	2.1	1.7	1.1	1.0

NOTE: Massachusetts and Federal maximum ambient eight-hour CO concentration -- 9 ppm.

would occur at a distance of 25 feet from the roadway for the years 1976 and 1980.

IV.D.2. Construction Impact on Air Quality

The construction activities will have three short-term effects on air quality:

- o Increase the particulate matter and NO_x emissions slightly due to the presence of heavy diesel construction machinery,
- o Increase the corridor emissions due to the decreased speeds and longer mileage caused by detours,
- o An increase in the particulate matter concentrations due to the fugitive dust stirred up by the equipment entering and leaving the construction areas.

The increased particulate matter levels will be the largest component of the air quality impact from these activities and perhaps of greatest annoyance to residential areas located near the construction site.

The Department of Environmental Quality Engineering, Division of Air and Hazardous Materials and the Department of Public Works both have regulations requiring definite efforts to be made to minimize these effects.[1,2] Actions that will be taken include the use of water on dirt roads and the reduction of speeds by heavy machinery to check the excessive dust clouds. An effective watering program alone (i.e., twice daily watering with complete coverage) could reduce the dust emissions by up to 50%.[3] Construction activities will also adhere to all regulations prohibiting open burning. These construction activities should not affect the compliance of this area with the National Ambient Air Quality Standards.

---

[1] Regulations for the Control of Air Pollution in the Pioneer Valley Air Pollution Control District, as adopted under the provisions of Section 142D, Chapter III of the General Laws of the Commonwealth of Massachusetts.

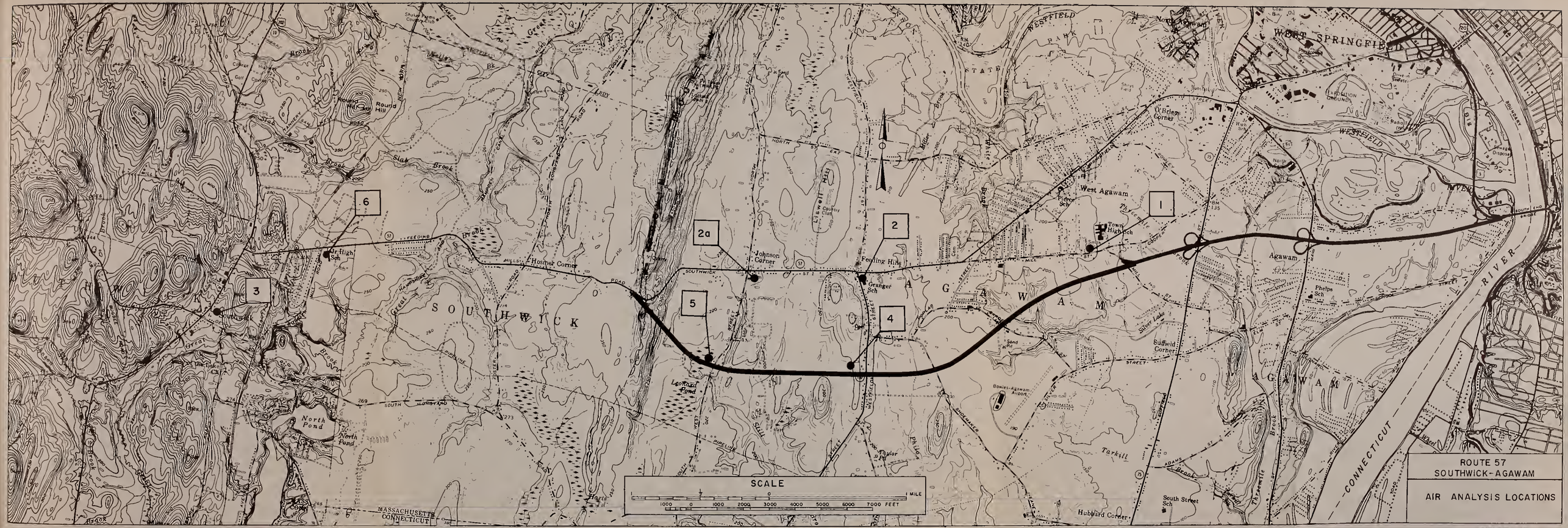
[2] The Commonwealth of Massachusetts, Department of Public Works, Standard Specifications for Highways and Bridges, Boston, Massachusetts, 1973

[3] Jutze, G.S., K. Axtell, Jr., W. Parker, Investigation of Fugitive Dust-Sources PED Co Environmental Specialists, Inc., U.S. Environmental Protection Agency, Contract No. 68-02-0044, Task No. 9, May, 1973.

IV.D.3. Conclusion

The proposed highway project was evaluated in regard to its effect on air quality and its effect on attaining and maintaining the National Ambient Air Quality Standards. Future emissions of carbon monoxide, hydrocarbons, and nitrogen oxides, would be less for all alternatives than for the 1976 existing conditions. The Upgraded Existing Route 57 would yield the lowest amount of total pollutant emissions.

On the microscale level, the only violation of Federal ambient air quality CO standards were with the "No-Build" Alternate. Since the analysis was based on very conservative meteorological conditions, with only a remote possibility of occurence, the computed values may be overly conservative. However, the use of the values for comparisons and trends is valid. Comparison of concentrations between these alternates indicates that the "No-Build" Alternate would have the most significant impact on the ambient CO air quality and there would be no significant degradation of air quality in the study area with the implementation either of the improvement alternates. This investigation indicates that the construction of this project will be consistent with the goals of achieving and maintaining the State and Federal Air Quality Standards.



H.W. Lochner Inc.

FIGURE 15

IV.E. NOISE IMPACTS

IV.E.1. Introduction

This noise study was performed as part of the engineering and environmental analysis phase of the Route 57 project in Agawam and Southwick.

The purpose of this noise study was to identify and assess any likely noise impacts under the various Alternatives being considered for Route 57. In order to accomplish this purpose the following steps were undertaken:

1. Identify noise sensitive areas along each alignment.

2. Determine the existing noise climate in the study area.

3. Establish the extent of any likely zones of noise impact.

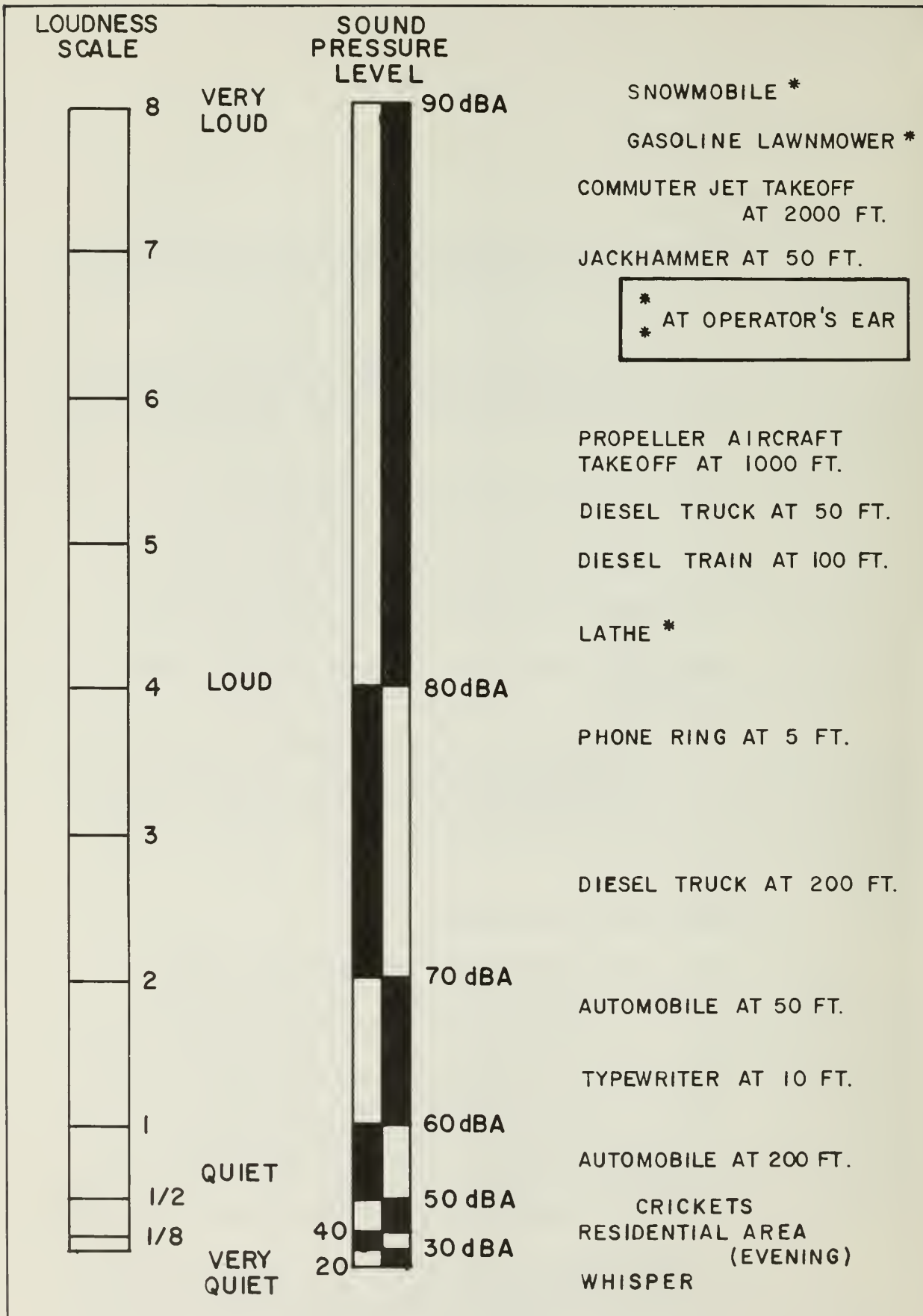
4. Where possible noise impacts are forecast, identify noise abatement measures.

Since none of the Build Alternatives involves any changes to the existing Route 57 east of Suffield Street in Agawam, the limits of all of the noise analyses discussed herein are Suffield Street (Rte 75) on the east and the Granville/Hillside Rd intersection on the west, a mile west of Southwick center.

IV.E.2. A-Weighted Noise Level (dBA)

Noise levels in this study are expressed in units of dBA, i.e. decibels on the A-weighted scale. The noise level in dBA can be measured directly with a sound level meter set to the A-weighting which then de-emphasizes sounds of very low or very high frequency in the audible range. When set to A-weighting a sound level meter closely simulates the frequency response of the human hearing system, i.e. noise levels in dBA are found to be closely correlated with human perceived noisiness and noise annoyance. Figure 16 shows some commonly experienced sound levels expressed in dBA. Note that a 10 dBA increase in noise level corresponds to a doubling in perceived noisiness.

To describe the changing noise levels it is customary to employ some type of statistical analysis of the time varying signal. While several types of statistical indicators are commonly used in community



NOISE SCALE

FIGURE 16

noise studies, this study considers mainly L10 noise levels in accordance with the FHWA noise standards. L10 is the noise level exceeded 10 percent of the time during the period of observation and is expressed in dBA. In other words, L10 is the noise level exceeded for a cumulative total of 1 minute out of every 10 minutes or 6 minutes out of the hour. L10 is a sensitive measure of noise intrusions from traffic.

IV.E.3. Methodology

Traffic generated noise levels were calculated for the existing Rte 57 and for the three future alternatives: No-Build, Upgrade, and Relocation. The purpose of the traffic noise calculations was to provide a quantitative basis for assessing the likely noise impacts under these three different alternatives. All calculated noise levels are expressed in L10-dBA.

The traffic noise calculation procedure used was the so-called "complete method" of NCHRP Report 117.

IV.E.4. Calculated Traffic Noise Levels

Table 12 summarizes the measured and calculated traffic noise levels in L10 dBA at each of the noise sampling locations. In general the measured noise levels and those calculated using 1976 traffic volumes agree quite closely, i.e. $\pm$3 dBA. Because of limitations in acoustical instrumentation accuracy and also inherent uncertainties in the L10 levels due to the limited sampling that was possible, a difference of 3 dBA between calculated and measured values is not considered significant.

The measured noise levels in Table 12 are simply the highest L10 levels measured. In some cases, Table 12 shows calculated traffic noise levels for Existing (1976) volumes that are more than 3 dBA above the measured L10 value. Such discrepancies reflect the fact that the calculations were based on peak hour volumes whereas the noise sampling was sometimes conducted at off-peak times.

In assessing projected noise level changes under the different future Alternatives, it is most meaningful to compare with the calculated Existing levels. The future noise levels in Table 12 were calculated using the same geometric modeling assumptions as the Existing calculated levels. Thus projected noise level changes reflect forecast traffic volumes in as accurate a manner possible.

TABLE 12

MEASURED AND CALCULATED TRAFFIC NOISE LEVELS (dBA-L10): EXISTING & DESIGN YEAR (1995)

Loc'n*	Measured (1977)	Calculated (NCHRP-117)			
		Existing (1976)	No-Build (1995)	Upgrade (1995)	Reloc. (1995)
1	63	67	69	69	70
2	68	70	72	72	69
3	70	71	73	73	70
4	64	57	60	60	56
5	66	69	70	71	67
6	68	68	69	69	70*
7	69	71	74	74	75
8	68	71	72	72	73
9	58	66	67	67	67
10	66	68	70	70	71
11	60	67	68	68	73**
12	45	-	-	-	57
13	69	67	69	69	70***
14	60	-	-	-	71
15	60	-	-	-	71
16	54	-	-	-	66
17	64	66	68	68	69

* See Fig. 17

** Traffic noise contribution from both Relocated Rte 57 and South West St.

*** Noise at Location 13 dominated by Rte 187 (Westfield St) Traffic. Contribution from Relocated Rte 57 is 57 dBA-L10

IV.E.5. Projected Noise at Estimated Time of Completion of Relocated Rte 57

The projected future noise levels in Table 12 are for the Design Year (1995). It is also of interest to examine projected noise levels for the estimated time of completion (ETC) of the project, i.e. the year 1980. Traffic noise calculations have been performed for 1980 using the same traffic forecasts used for the Air Quality Microscale Analysis (9/12/77). The results of these calculations are shown in Table 13.

The traffic noise levels in Table 13 projected for 1980 may be compared with those in Table 12 for the design year (1995). In general, the 1980 levels are slightly less than those projected for 1995. This is because of the lower traffic volumes in 1980. In a couple of instances (e.g. Location 6) the noise levels projected for 1980 are slightly higher than those for 1995. This is because the speeds projected for 1980 are greater than for 1995, and the noise level increase due to these higher speeds more than offsets the effect of the reduced volumes.

TABLE 13
CALCULATED TRAFFIC NOISE LEVELS
(Peak Hour dBA-L10): EXISTING (1976)
AND ESTIMATED TIME OF COMPLETION (1980)

Loc'n (See Fig 17)	Calculated Noise Level			
	Existing (1976)	No-Build (1980)	Upgrade (1980)	Relocate (1980)
2	69 dBA	70 dBA	70 dBA	69 dBA
3	71	73	71	67
4	58	59	58	53
5	71	69	70	68
6	70	70	70	69
11	67	68	68	69
13	68	68	68	70

IV.E.6. Criteria for Noise Impact

The FHWA Design Noise Levels are shown in Table 14. Most noise sensitive land uses fall into Category B and thus qualify for a Design Noise Level of 70 dBA-L10 at the property line closest to the highway.

TABLE 14
FHWA DESIGN NOISE LEVELS
FOR TRAFFIC NOISE AS
PROMULGATED IN FHPM 7-7-3

Land Use Category/Description	Design Noise Level (Peak Hour Traffic).
(A) Tracts of land in which serenity & quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose. Such areas could include amphitheaters, particular parks or portions of parks, open spaces, or historic districts which are dedicated or recognized by appropriate local officials for activities requiring special qualities of serenity and quiet.	60 dBA-L10 (Exterior)
(B) Picnic areas, recreation areas, playgrounds, active sports areas, and parks which are not included in Category A and residences, motels, hotels, public meeting rooms, schools, churches, libraries, and hospitals.	70 dBA-L10 (Exterior)
(C) Developed lands, properties or activities not included in Categories A or B above.	75 dBA-L10 (Exterior)
(D) For requirements on undeveloped lands see FHPM 7-7-3	
(E) Residences, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals, and auditoriums.	55 dBA-L10 (Interior)

The FHWA noise standards also state that:

> "Noise impacts can be expected when the predicted traffic noise levels (for the design year) approach or exceed the design noise levels...or...are substantially higher than the existing noise levels

The FHWA has not defined "substantially higher" in quantitative terms but the NCHRP research indicated that a 10-15 dBA increase in the L10 noise levels can be expected to result in adverse noise impacts. For administrative purposes the MDPW has determined that a projected 15 dBA increase in noise levels define a noise impact condition.

Where the projected traffic noise levels either exceed the applicable Design Noise Levels in Table 14 or, for noise sensitive areas, are over 15 dBA above the Existing noise levels, the Mass. DPW considers that these areas qualify for traffic noise abatement measures. If a thorough investigation indicates that noise abatement measures are not feasible then an "exception" is requested from the FHWA, according to FHPM 7-7-3.

IV.E.7. Likely Traffic Noise Impacts

Based on the noise level calculations, areas outside the right of way have been identified which are expected to receive traffic noise exposure in the ranges 60-70 dBA-L10 and over 70 dBA-L10. 60-70 dBA-L10 Noise Levels represent a significant increase since the average existing noise level in the project area is 45 dBA. These areas are indicated graphically in Figures 17 and 18 for two of the alternatives investigated: Upgrade and Partial Relocation. The L10=70 dBA contours are not shown because they are too close to the roadway to be read clearly at the map scale.

Table 15 summarizes the potential impact areas projected in Agawam. These are acreages outside the right-of-way projected to receive over 70 dBA-L10 for the existing corridor and over 60 dBA-L10 for the Relocation corridor. In terms of the 70 dBA-L10 Design Noise Level there is no significant difference amongst the four Alternative conditions. However, the Relocation Alternative is projected to result in an additional 410 acres of land receiving 60 - 70 dBA-L10. For much of this corridor this represents a 10 - 15 dBA increase over existing noise levels. It must be noted, however, that the Relocation Alternative does offer a beneficial reduction in noise exposure along existing Route 57, i.e. from 40-50 acres receiving over 70 dBA-L10 down to 25 acres.

TABLE 15
POTENTIAL TRAFFIC NOISE IMPACT AREAS IN AGAWAM.

Alternative	Potential Impact Areas (acres)		
	Along Existing Route 57	Along Relocation Corridor	Total (Both Corridors)
Existing (1976)	40 acres	-	40 acres
No-Build (1995)	50 acres	-	50 acres
Upgrade (1995)	45 acres	-	45 acres
Relocation (1995)	25 acres	20 acres over 70 dBA	45 acres over 70 dBA
		410 acres 60-70 dBA	455 acres including areas in Relocation corridor 60-70 dBA

Table 16 shows the projected areas of noise exposure for Route 57 sections in Southwick, from the Agawam line to the study area limit, (Granville/Hillside Rd. intersection, one mile west of Southwick Center). There are no significant differences amongst the four Alternative conditions.

TABLE 16
POTENTIAL TRAFFIC NOISE IMPACT AREAS IN SOUTHWICK

Alternative	Potential Impact Areas (acres)
Existing (1976)	30 acres
No-Build (1995)	40 acres
Upgrade (1995)	40 acres
Relocation (1995)	50 acres

Tables 17 & 18 show projected numbers of existing residential properties potentially likely to receive adverse noise impacts under the different Alternatives. As before, the potential noise impact condition is defined as over 70 dBA-L10 along existing Route 57 and over 60 dBA-L10 along the Relocation corridor.

Along existing Route 57, there are no significant differences in numbers of residences affected under any of the four Alternative conditions, except under the Relocation Alternative in Agawam. Under this Alternative, the number of residences affected decreases by about 15%.

In the Relocation corridor, a new Route 57 would introduce three residences to noise over 70 dBA-L10 and 30 residences to 60-70 dBA-L10. One of the residences exposed to over 70 dBA-L10 is on Shoemaker Lane, and the other two are on Garden St. Noise exceptions for these three residences will be sought if abatement measures are not feasible.

TABLE 17
POTENTIALLY NOISE-IMPACTED
RESIDENTIAL PROPERTIES IN AGAWAM.

Alternative	Numbers of Residential Properties		
	Along Existing Route 57	Along Relocation Corridor	Total (Both Corridors)
Existing (1976)	149	-	149
No-Build (1995)	149	-	149
Upgrade (1995)	149	-	149
Relocation (1995)	130	3 over 70 dBA 30: 60-70 dBA*	133 over 70 dBA 163 including properties in Relocation corridor 60-70 dBA.*

TABLE 18
POTENTIALLY NOISE-IMPACTED
RESIDENTIAL PROPERTIES IN SOUTHWICK.

Alternative	Numbers of Residential Properties
Existing (1976)	164
No-Build (1995)	164
Upgrade (1995)	164
Relocation (1995)	166

* Note: 60-70 dBA in the Relocation Corridor is considered to represent potentially a significant increase of 15 dBA over existing noise levels.

Table 17 shows the total numbers of potentially noise impacted residences in the Relocation Corridor. These are mainly located near the various local streets crossing the proposed new highway, as shown in Table 19.

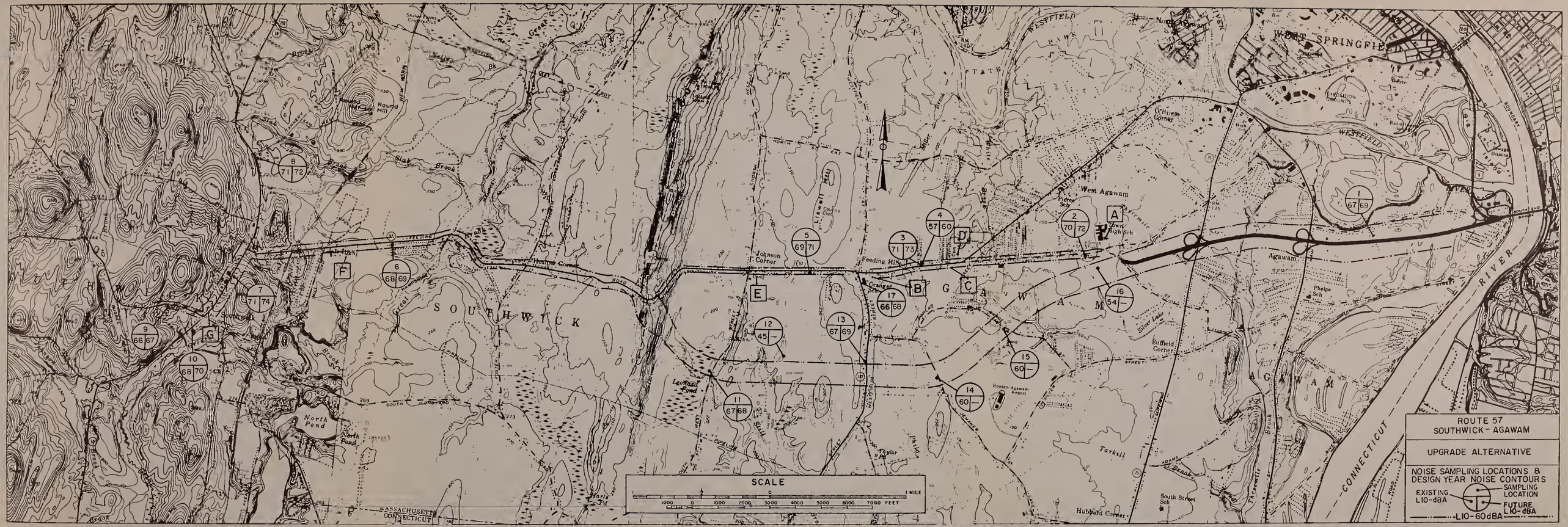
TABLE 19
LOCATIONS OF POTENTIALLY NOISE-IMPACTED RESIDENCES ALONG RELOCATION CORRIDOR.

Location	Nos. of Residences Over 70 dBA	Nos. of Residences 60-70 dBA (Potential Significant Noise Increase)
Mill St., South of Alignment	0	2
Holland Drive	0	6
Mill St., North of Alignment	0	5
Garden St.	2	7
Shoemaker Lane	1	4
Westfield St.	0	0
Hendom Hts.	0	0*
West St.	0	4
Southwick Rd.	0	2
TOTAL	3	30

* Note: Two residences in Hendom Hts are projected to receive 60-70 dBA under the northerly alignment to Provin Mt.

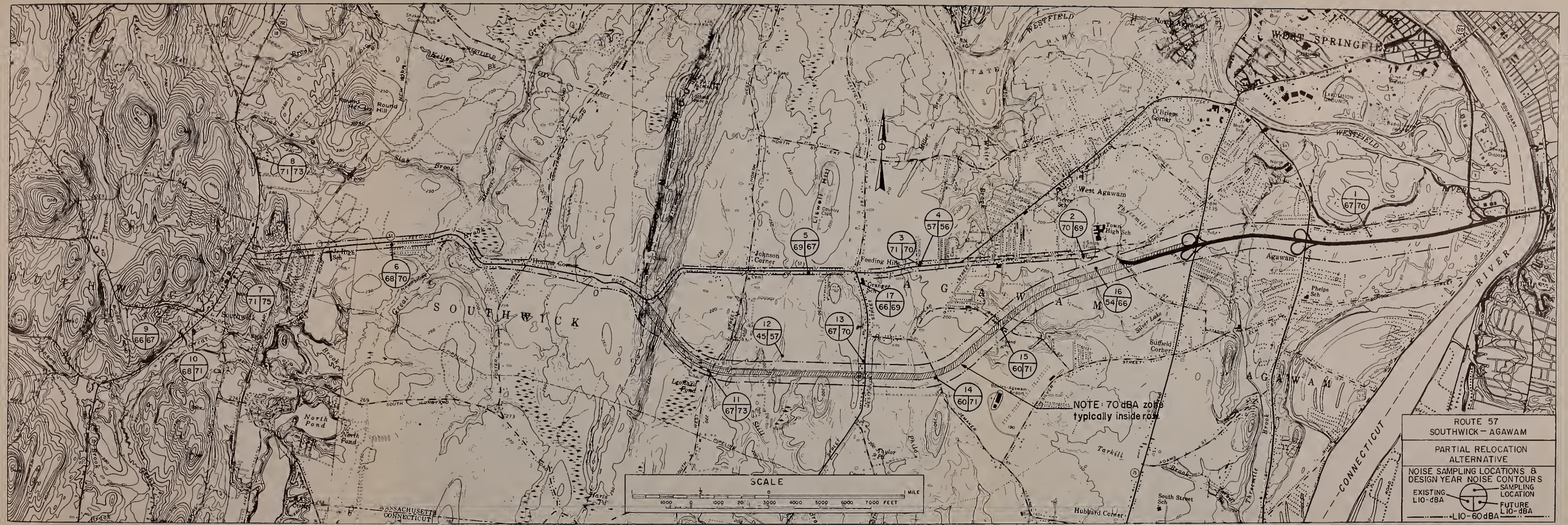
IV.E.8. Traffic Noise Abatement

During the design of a Partially Relocated Rte 57, there would be a number of opportunities to reduce or eliminate potential adverse noise impacts of the kind identified in this study. In areas of residential land use expected to be exposed to noise levels of 60-70 dBA-L10 or more, it would be beneficial to reduce noise levels by a variety of approaches. These could include depressing the pavement relative to



H.W. Lochner Inc.

FIGURE 17



H.W. Lochner Inc.

FIGURE 18

surrounding terrain, or including man-made barriers such as berms or walls. (Note that these noise abatement apportunities do not exist for the Upgrade Alternative).

Further investigation of such possible noise abatement measures will have to wait until the design phase of this project. Presently not enough information is available to make accurate traffic noise projections for these areas, particularly information on the roadway profile.

IV.E.9. Construction Noise Abatement

During construction of the relocated portion of Rte 57 short-term exposure to high noise levels in nearby residential and other noise sensitive areas may be expected. Some of the typical sources of highway construction noise are: earthmoving; drilling and blasting; batch plants; heavy construction vehicle access; pile driving. Construction to upgrade the existing Rte 57 would also produce some high noise levels.

Part of the design effort for the Relocation Alternative should include consideration of such noise related questions as: access routes for heavy construction vehicles; location of batch plants away from noise sensitive areas; designing the Rte 57 vertical and horizontal alignments to avoid extensive rock drilling or blasting near noise sensitive areas. Finally if deemed necessary the construction contract documents should include requirements for community noise control by the contractor along the lines perhaps of some local noise ordinances.

IV.F. WATER QUALITY AND HYDROLOGY

IV.F.1. Water Resource Areas Affected by Relocated Route 57

The Route 57 project corridor crosses three surface water and drainage watershed basins. In Agawam Route 57 crosses the upper reaches of the feeder streams of Threemile Brook, Philo Brook and Still Brook. All three of these streams flow south and east to the Connecticut River. All affected watercourses and associated wetlands are shown in Figure 5 - Natural Resource Inventory.

More specifically, the proposed relocation of Route 57 will cross the upper reaches of several tributaries of Threemile Brook. These watercourses feed the ponds of the West Springfield Fish & Game Club and Silver Lake prior to being discharged into Threemile Brook. As described in Section II.C.3., Silver Lake serves a local recreational facility where swimming and fishing are typical activities. The ponds of the Fish & Game Club are stocked with trout and used for warm water fishing. The primary potentials for concern in this area are the possible impact of the highway due to erosion during the construction phase and due to storm runoff of roadway pollutants.

The major portion of the Feeding Hills wetland is located to the north of the relocated route and will be unaffected by the proposed project. The Westfield Street interchange will affect some wet areas of the westerly tributary of Philo Brook, but, as was the case for the Threemile Brook tributaries, the major concerns in this location are the impacts resulting from embankment erosion and runoff of roadway pollutants.

The proposed relocation of Route 57 crosses Still Brook and several small tributaries in the vicinity of South West Street. The main channel crossing, located immediately to the east of South West Street has a tributary area of over 700 acres. In this location, the hydrologic/flooding considerations are added to the areas of concern.

The westerly tributary of Still Brook is located to the south of the proposed route relocation, but it receives discharge from Leonard Pond and its associated wetlands and other upstream ponds and wetlands of the Provin Mountain range. Leonard Pond is a productive wildlife habitat marsh area and, due to a small outlet culvert at South West Street, serves as a very effective storm water storage area. The proposed route relocation will traverse the northern edge of the Leonard Pond wetland and will require the taking of some of the existing wetland

and flood storage areas. The highway impact on the Leonard Pond Wetland is a major project concern.

IV.F.2. Water Quality Impacts

a. Runoff Quality Constituents

A variety of studies have shown that roadway runoff contaminants are comprised primarily of particulate matter, but also include soluble and suspended matter (e.g., oils, salts, etc.). The sources of pollutant materials in the surface runoff are generally: 1] the surface itself (producing for example asphaltic cement, and aggregate material); 2] motor vehicles; 3] atmospheric "fallout"; 4] vegetation; 5] litter; 6] spills; and 7] anti-skid compounds. Of particular importance in this instance are the pollutant loads from motor vehicles, the surface itself, and anti-skid compounds. The nature of the facilities being considered (e.g., paved roads) is such that these three sources become most important.

Previous field studies (EPA, 1972 and 1975) have shown that the accumulation rates of pollutants from motor vehicles and highway surfaces can be estimated as a function of the dust and dirt accumulation on a street surface. For low density residential areas, it has been determined that about 0.7 pounds per 100 - feet of curb per day of dust and dirt accumulate on the surface. Samples taken in several of these areas showed that quantities of other pollutants could be directly related to the amount of dust and dirt accumulated. The results of these studies have indicated that the relationship between the accumulation of dust and dirt and the pollutants of primary importance are present in the following amounts for the typical land use types in the study area.

Pollutant	Pounds of Pollutant Per 1000 lbs of Dust and Dirt
Total Solids	1000
Petroleum products	1.0
Total heavy metals	.71

Heavy metals deposited from automobiles can be of concern because of their high potential toxicity to various biological forms. Samples collected from street surfaces in several cities by the EPA (1972) were tested for the following metals: zinc, copper, lead, nickle, mercury, and chromium. The hazards of these metals depends on their chemical state and several other complex factors that make

TABLE 20

REPORTED APPLIED SALT QUANTITIES

Year	75-76	74-75	73-74	72-73	71-72
Reported Applied Amount on Test Section of Highway (tons)*	10.1	9.8	8.7	10.5	16.7
Number of Snow and Ice Storms in District 4	20	28	20	26	31
Total Snowfall Average (inches) District 4	70	68	44	43	100

* Test section of Route 9 is 2.7 lanes in each direction and 729 feet long.

evaluation of their effects difficult at the present time. There is expected to be more than sufficient dilution available in the streams and ponds to maintain the relatively small quantities of these materials added by the highway well below toxic levels.

One of the potential pollutants considered most significant to the project is de-icing salt used during the winter season to improve highway safety. The amount of the material that can potentially enter the eco-system from the roadway will be primarily a function of the application rate. Typical application rates used by the Massachusetts D.P.W. can be used to estimate the amount of highway salt available for washoff. In a study previously done for portions of Route 9 in Framingham, Massachusetts, typical loading rates were given by the M.D.P.W. for a section of the Route 9 highway as shown in Table 20. These amounts of salt were available for washoff directly to a local lake. Similar loading rates would be applicable for the Route 57 project.

b. Assessment of Water Quality Impacts

At the present time water quality samples of the streams and wetlands located within the project area are not available. A sampling program was not undertaken because none of the streams crossed by the relocated route serve as sources of public water supply; in addition the streams serve limited recreational activities. The streams are located in generally residential, agricultural and open areas with few sources of water pollution. The water quality of the area has not been seriously degraded. It is estimated that the present condition of the surface waters in the project area would fall in Class"B" category or higher.

The water quality categories established by the Massachusetts Water Resource Commission, Division of Water Pollution Control designate Class"A" waters as acceptable as public water supply, Class "B" - acceptable for bathing and water contact recreational activities and Class "C" - acceptable as fish and wildlife habitat, certain agricultural and industrial uses and aesthetic values.

The incremental pollutant loadings to the waterways can be estimated as being proportional to the increased highway surface area which will result from completion of the proposed project. Estimates of the pollutant contributions from the existing highway and the proposed highway to each of the waterways of concern are summarized in Tables 21 and 22.

As can be seen from Tables 21 and 22, the increase in the concentration of each pollutant is relatively small. The small increase in concentration of pollutants is unlikely to effect significantly the water quality and, in turn, the flora and fauna of the wetland areas.

TABLE 21

**AVERAGE ANNUAL SALT CONCENTRATIONS

(Due to Highways in the Project Area)

Location	Drainage Area (acres)	Existing Roadway			Relocated Route 57		
		Length (ft)	Number of Lanes	Total NaCl Concentration (mg/l)	Additional Length (ft)	Number of Lanes	Total NaCl Concentration (mg/l)
Leonard Pond	1664	4,000	2.3	1.4	3700	4.6	4.5
*Still Brook	707	11,000	2.3	9.4	1600	4.6	12.5
*Philo Brook (West Branch)	95	1,500	2.3	9.5	1000	6.6	30.4
Silver Lake	586	15,000	2.3	15.5	8000	4.6	33.7

*Drainage area calculated to intersection of highway and brook.

**Salt concentrations assume:

(a) Existing salt application rates average 250#/lane-mile/storm per Agawam Department of Public Works reported applied amounts.

(b) Projected salt application - average 300#/lane-mile/storm per Massachusetts Department of Public Works reported applied amounts.

(c) Twenty snow storms/year.

(d) Forty-two inches/year of rainfall and a forty percent average annusl runoff.

TABLE 22

***AVERAGE ANNUAL AUTOMOBILE POLLUTANT CONCENTRATIONS

(Due to Highways in the Project Area)

Location	Existing Roadway			Total Concentrations		Relocated Route 57		Total Concentrations	
	Drainage Area (acres)	Length (ft)	Number of Gutters	*Pet (mg/l)	**Heavy Metals (mg/l)	Additional Length (ft)	Number of Gutters	*Pet (mg/l)	**Heavy Metals (mg/l)
Leonard Pond	1664	4,000	2	.03	.02	3700	4	.09	.06
Still Brook	707	11,000	2	.21	.15	1600	4	.27	.19
Philo Brook	95	1,500	2	.21	.15	1000	4	.50	.35
Silver Lake	586	15,000	2	.35	.24	8000	4	.72	.50

* Petroleum product concentrations assume a ratio of 1.0 lbs of petroleum product per 1000 lb of gutter dust and dirt.

** Heavy metal concentrations assume a ratio of .71 lb of heavy metals per 1000 lbs of gutter dust and dirt.

*** All concerntrations assume (a) .7 lb of dust and dirt/100 ft-gutter/day.
(b) Forty-two inches/year of rainfall and a forty percent average annual runoff.

c. Possible Measures to Minimize Runoff Pollutant Impacts

The impact of increased salt concentrations would be most significant if the salt increases were allowed to accumulate in any particular area. The most effective means of controlling the amount of this pollutant to reach the environment is to control the application rate. Since salt is a highly soluble material, "settling out" of this pollutant will not occur in highway catch basins or retention areas.

Dilution is a second means of controlling the impact of roadway salt on the overall study environment. The runoff from the roadway can be drained to and mixed with water which has lower or no significant concentration of salts when compared to the concentrations in highway runoff. In this way, the average concentration of salt in the surrounding water bodies is reduced significantly. The main consideration is to drain the highway runoff to an area which is not stagnant water, but to an area which is continually flushed so that the concentration of salt does not build over a period of time.

The quantity of particulate matter, and hence, the quantity of pollutants, which reach the overall environment from the roadway surfaces can be controlled in two ways. One way is to sweep the roadways of dirt using large street sweeping vehicles. However, it is unlikely that sweeping of a major highway such as Route 57 would be frequent enough to control significant amounts of particulate matter. The use of catchbasins to capture particulate matter is a second method which is effective in limiting the pollutants in stormwater runoff. A percentage of particulate matter washed into the catchbasin settle out and do not enter the highway system. Some pollutants from the roadway will reach the streams and wetlands of the study area. However, by using the methods described above, the amount of pollutants can be limited.

IV.F.3. Erosion Control

The main impact of the highway due to erosion on sensitive areas such as Silver Lake will be during the construction phase of the project. Sediments can be prevented from reaching these areas by using guidelines outlined by the Soil Conservation Service (1975).

The most effective means of controlling sediment is to use siltation ponds and restrictive dikes to surround the construction area. The purpose of these measures is to allow storm water runoff laiden with silt to pond behind the dike area and drop its sediment load.

For areas less than 1/2 acre, the simple straw bale dike is effective in removing sediment for storm water runoff. Construction

areas draining more than 1/2 acre must use a structure more substantial than the straw bale dike. A pipe outlet sediment trap would be sufficient for larger areas. Specific project site erosion control measures will be developed during the design phase.

The impact of siltation on streams and ponds in the study area should be minimal by following careful construction practices. Once the highway area is stabilized, the erosion rates in the study area will not be significantly greater than from the existing study area.

IV.F.4. Impact on Streams and Wetlands

The proposed relocation of Route 57 in Agawam will cross several brooks and the Leonard Pond wetland. The design of the highway at these locations will fall under the jurisdiction of the Wetland Protection Act - Massachusetts General Laws Chapter 131 Section 40. The provisions of Federal Executive Order 11990 - Protection of Wetlands will also apply.

The purpose of this section of the Negative Declaration is to identify the affected stream and wetland areas and to set forth appropriate drainage design criteria in locations where wetlands cannot be avoided. Possible measures to minimize harm to the wetlands are also identified.

A detailed hydrologic impact investigation report [1] was prepared as part of the Engineering Study for this project. Basic hydrologic data for this section of the Negative Declaration has been exerpted from that report. However, detailed data on watershed areas, storm water flows and culvert sizes has been omitted as it pertains to the design phase of the project and cannot be firmly established until alignment and construction features can be better defined.

There are three fundamental issues which should be dealt with by the drainage criteria: flood prevention/wetlands protection, erosion protection and water quality considerations. The water quality and erosion protection aspects have been addressed in the preceding sections. The remainder of this section is devoted to the hydrologic features of the project.

a. Hydrologic Design Considerations

In general, the percentage of rainfall which becomes storm water runoff and which must be conveyed by man-made or natural drainage systems is determined by surface and subsurface characteristics of

---

1] Resource Analysis, Inc., Investigation of Hydrologic Impacts and Control Measures, Route 57 Relocation, Agawam, Massachusetts (Draft Report), December 1977

the drainage area. Pervious surface conditions (a high percentage of open space, e.g. forests, rural or low density residential land use types) and/or well draining subsurface conditions (permeable soils combined with a low water table) tend to result in a low percentage of runoff.

The Town of Agawam's drainage characteristics are typical of an area which has low runoff potential due to its low density residential and rural land use types. The relocation of the Route 57 highway will alter the runoff potential of the area by a small amount. The paved surface of the highway will cause more acreage to be impervious to rainfall and, hence, a slightly greater quantity of runoff will occur.

A more important aspect of the study area's drainage characteristics which will be altered by the relocation is the construction of the highway's embankments. The embankments affect the study area in two ways. First, a highway embankment can act as a dam by blocking existing drainage paths, forcing runoff to build up behind the highway and possibly flooding landowners in upstream areas. Secondly, fill used to construct the embankment can possibly claim area used to store flood flows. The loss of flood storage could also cause higher flood elevations to occur upstream of the highway. The criteria set for the design of highway culverts and other drainage design features must address the problem of protecting these areas.

As noted earlier, the increase in storm water runoff due to the highway pavements would be small compared to the runoff from areas upstream of the highway. The increased runoff, if drained to the downstream side of the highway, would not cause flooding problems for upstream areas. However, should the increased runoff from the highway be critical to flooding considerations in downstream areas, then compensating flood storage volume would have to be provided to reduce the peak discharges from the highway surface to acceptable levels. The retention volume could be provided in either of three locations: storage areas at the upstream inlet of highway culverts, in highway median strips, or at some area downstream of the highway. Similar provisions would have to be considered for existing flood storage and wetland areas claimed by the highway embankments.

The provision of compensating flood storage areas would be necessary in locations where the increased storm water runoff or loss of existing flood storage volume would increase the flood levels to the point where private property would be endangered. However, in locations where the flood elevation increases would remain at acceptable levels, it may be possible to omit the compensating storage areas and avoid the possible disruptive effects of excavation in wetland areas.

The specific site determinations on the requirements of compensating flood storage will be made in the design phase in consultation with the Agawam Conservation Commission under existing Department of Public Works procedures to satisfy the requirements of the Wetlands Protection Act.

At stream crossings the highway culverts provided must be designed to accommodate floods at least as great as that for a 50-year frequency, but with backwater limited to an amount which will not result in damage to upstream property or to the highway, based on the 100-year storm event.

b. Stream Crossings

The proposed highway will cross the main channels and/or tributaries of Still Brook, Philo Brook and Threemile Brook. The construction of the highway embankments will require installation of pipe or box culverts at the existing waterway locations. Identified wetlands will not be affected, but several small low-lying wet areas along Still Brook and Philo Brook watercourses will be partially filled.

At all stream and watercourse locations adequate size culverts will be provided to convey flows from these streams underneath the highway without causing flooding problems upstream or downstream of the highway. Also, if required, compensating flood storage areas will be provided in areas upstream of the highway. The provision of compensating flood storage is not necessarily desirable due to the possible disruptive effects of excavation on wetland areas. Preliminary computations indicate that the rise of culvert headwater elevation without compensating storage would range from 0.5 to 1.3 feet for the two Still Brook streams and approximately 0.5 feet in the Westfield Street interchange area. No existing private residences upstream of the highway would be endangered by the estimated water level increases, but the final determination of the need for compensating flood storage would be made in the design phase in consultation with the Agawam Conservation Commission.

c. Leonard Pond Wetland

The Leonard Pond wetland is located in western Agawam, just west of South West Street and beginning approximately one-half mile south of existing Route 57. The total wetland area is 55-60 acres and the main wetland classes are deep marsh (Leonard Pond - 9 acres) and wooded swamp (45-50 acres). Shallow marsh is present just northwest of Leonard Pond and patches of shrub swamp are scattered throughout the area. One small stream drains agricultural land and enters the swamp on the northwest side. The other feeder stream enters the southwest end

and drains both Hart's Pond with its associated wetlands and the Agawam Bowmen's Club Wetland. Outflow is through a 42" diameter pipe culvert under South West Street to Still Brook. The total watershed area is 2.6 square miles.

The proposed relocation of Route 57 will cross the northern edge of the wetland complex. Two alternative highway alignments were developed for the crossing of the wetland. Both alignments are located to the north of Leonard Pond and upstream of the wetland outflow pipe culvert at South West Street. Since only one general corridor has been identified as being viable for the route relocation through Agawam, the Leonard Pond wetland cannot be avoided. Therefore, the impact studies have concentrated on the two feasible approach alignments to Provin Mountain.

Both alternatives would require the displacement of approximately 5 acres of the wetland area. The preferred, southerly approach alignment would cross a deeper portion of the marsh and displace a greater flood storage volume. However, this alignment would not require any residential displacements. The northerly approach alignment would be located at the edge of the wetland and would intercept a smaller watershed area. However, this alignment would require the displacement and relocation of six additional single family residences.

Storm flow and maximum discharge computations developed for several design storm conditions indicate that the Leonard Pond wetland, due to its small outlet (and due to the elevation of South West Street) is very effective in controlling flood flows to Still Brook. The peak flood stage in the wetland is not reached until nine hours after the beginning of rainfall for a 2-hour storm and 16 hours after the beginning of rainfall for the 12-hour storm (both storm events are based on a 100-year return interval).

The sizes of the highway culverts needed to prevent flooding in areas upstream of the highway would have to permit flow discharges which would produce peak stages behind the culverts of elevations equal or lower than the stages occurring for the existing wetland conditions. A comparison of maximum headwater elevations with and without compensating flood storage volume indicates a maximum elevation differential of 0.03' (Elev. 207.70 vs. Elev. 207.73). The loss of compensating storage, therefore, would cause an insignificant increase in headwater elevations behind the highway culverts. Since the lowest elevations of private residences in the area behind the culvert are approximately 210 ft., the effect of not providing compensating storage would not endanger upstream private property for the storm events considered.

It should be pointed out, however, that a rise in the Leonard Pond wetland flood elevations could adversely affect property located to the south of the wetland, where the existing ground elevations are below elevation 210. More detailed survey information is required to determine if there are properties located at elevation 208 or lower. Therefore, the final determination on the need of compensating storage volume or modification of the outflow culvert at South West Street cannot be made until the design phase of the project. However, preliminary analysis results indicate that it is possible to satisfy all applicable storm drainage design requirements by use of standard design methods and procedures.

d. Measures to Minimize Harm

Detailed measures to minimize harm will be finalized in The Order of Conditions issued by the Conservation Commission subsequent to the Wetlands Public Hearing in accordance with the Wetlands Protection Act. This will be accomplished during the design stage of the project.

IV.G. SECONDARY IMPACTS

IV.G.1. Induced Development in Southwick

The proposed reconstruction of Route 57 will not open any new land for development, but, through reduced travel times, will offer improved accessibility to the Springfield urbanized area and could act as a catalyst to a more rapid development of the remaining buildable open land in Southwick.

The rate of development of an area is dependent on prevailing land costs, availability of investor funds and local consumer demand. The effect on these variables as a result of a new highway construction and a 3 to 6 minute travel time saving cannot be readily quantified. However, the increased growth rate would not be expected to be significant.

Southwick currently possesses a large reservoir of good buildable land particularly east of Route 10 & 202. East Southwick has the greatest combined concentration of good soils and gentle slopes, a good deal of which, until recent years, had been cultivated for tobacco purposes. There are approximately 4,000 acres of prime buildable land in this area.

The Town of Southwick in anticipation of properly controlling the potential growth should be prepared to exercise various planning measures, such as zoning ordinances, public facility and utility expansion and the acquisition of land for public purposes.

IV.G.2. Traffic Impacts on South End Bridge

Divided Route 57 terminates 2.75 miles east of the project study area at the rotary interchange with Route 5. At that location ramp connections are provided in both directions of Route 5 and street connections are made to Meadow and River Roads. The easterly ramps of this interchange enter the South End Bridge which serves as a major access facility to Interstate Route 91 and the City of Springfield. Traffic flow volumes on the bridge are high with evidence of congestion during peak travel periods.

From a visual observation of the area it is evident that the major reason for the recurring congestion conditions at the Bridge and approaches is not due to capacity deficiencies, but to the severely restrictive geometric configuration of the interchanges east and west of the bridge.

The construction of Relocated Route 57 will increase the rate of traffic growth on the route and at the South End Bridge. The project traffic analysis indicates that the combined total of available lanes on the South End Bridge and U. S. 5 north of the rotary has adequate capacity to accomodate the projected design year (1995) traffic volumes. However, due to the increased traffic flows, the congestion conditions are expected to be more frequent and more severe.

APPENDIX A

CONCEPTUAL STAGE RELOCATION PLAN

CONCEPTUAL STAGE RELOCATION PLAN
AGAWAM AND SOUTHWICK - ROUTE 57

Neighborhood Characteristics

The subject of this study is a 4.5 mile section of Route 57 in Agawam. The area under consideration extends west from Suffield Street (Route 75) in Agawam to the Provin Mountain area at the Agawam-Southwick line. All residential and business displacements will be confined to Agawam. There will be no takings in Southwick.

The "preferred alternative", the Partial Route Relocation Alternative, will begin at Suffield Street where the existing interchange will be modified to provide movements to and from the west, by converting to a full diamond type interchange. For safety purposes, Route 57 will continue as a four lane divided highway merging into a two lane access controlled roadway west of South Westfield Street. At South Westfield Street interchange access for both east and west movements will be provided. Both a partial cloverleaf and full diamond type configuration have been studied for this location. A selection of either interchange will be made at a later date. The roadway will intersect West Street at-grade, spanning Leonard Pond wetland on the approach to Provin Mountain. The relocated Route 57 will merge with existing Route 57 at the Agawam-Southwick line.

The new roadway will have a negative impact regarding the required displacement of families and businesses and will further delineate the residential areas of southwest Agawam. A total of fourteen homes and eight businesses will be taken by the preferred alternative. Four of these eight businesses are operated from within homes that will be displaced. These takings occur where the alignment crosses Mill Street, Garden Street, Shoemaker Lane, and South Westfield Street. The greatest concentrations of takings occur at Garden Street and South Westfield Street with both having eight residential/business displacements. The areas impacted are neither traditional nor established neighborhoods per se, rather the areas effected tend to be a mix of single family homes and small commercial structures abutting the existing two lane streets.

The majority of households impacted consist of long-time residents of the community, who will undoubtedly choose to relocate in Agawam. The number in the families effected ranges from two to eight persons. No special needs are anticipated during relocation. No minority household will be displaced. There will be minimal disruption to the local community due to the isolated nature of the takings, only at local street crossings, and the substantial number and kinds of homes available on the market.

Summary Tabulation of Residential Takings for the Partial Route Relocation Alternative

Garden Street Area:

Number of structures -	5
Estimated units owner-occupied -	5
Estimated units renter-occupied -	0
Vacant units -	0
Total units -	5

Shoemaker Lane:

Number of structures -	3
Estimated units owner-occupied -	3
Estimated units renter-occupied -	0
Vacant units -	0
Total units -	3

South Westfield St. (Diamond Interchange):

Number of structures -	6
Estimated units owner-occupied -	4
Estimated units renter-occupied -	1
Vacant units -	1
Total units -	6

South Westfield St. (Partial Cloverleaf Interchange):

Number of structures -	6
Estimated units owner-occupied -	4
Estimated units renter-occupied -	1
Vacant units -	1
Total units -	6

Total Takings:

Number of structures	14
Estimated units owner-occupied	12
Estimated units renter-occupied	11
Vacant units -	1
Total units -	14

Housing Market Analysis:

The information utilized for the housing market analysis was taken from the "Weekly Market Analysis" for the week of August 12, 1977 as published by the Greater Springfield Board of Realtors.

Rentals

Eight homes were listed for rent in Agawam. Only two of the homes described included the monthly rent, which ranged from $220 to $325 per month. Most of the advertisements were fairly general in nature with no locations offered. The size of the homes varied from four to nine rooms with four having six rooms.

Apartments appear readily available in Agawam with several newer complex types advertising regularly. These are generally three and four room units, with one or two bedrooms, offering various amenities. Prices were not listed for these apartments. Other apartments advertised ranged from two room efficiency to "seven old large rooms" with prices varying from $120 to $250. Utilities were generally included.

Sales

Houses listed for sale encompassed a wide range of price, style, age and size. Asking prices varied from a low of $24,000. to a high of $125,000. The 115 homes listed reflected an overall average worth of $46,263. with both the median and mode (10) being $39,900. Ranch style homes, generally with 5 or 6 rooms, outnumbered other styles available by more than 2 to 1 with colonials and capes being next in predominance. Most of the ranches for sale are less than 15 years old and their overwhelming abundance in the market is clearly indicative of the significant amount of growth that has occurred in Agawam within this same time period.

The "Weekly Market Analysis" listed the following single family homes available for sale in Agawam, August 12, 1977.

A.	$20,000 to 24,999 -	1
B.	25,000 to 29,999 -	10
C.	30,000 to 34,999 -	18
D.	35,000 to 39,999 -	34
E.	40,000 to 44,999 -	15
F.	45,000 to 49,999 -	20
G.	50,000 to 54,999 -	4
H.	55,000 to 59,999 -	7
I.	60,000 to 64,999 -	2
J.	65,000 to 69,999 -	1
K.	70,000 to 74,999 -	1
L.	75,000 to 79,999 -	0
M.	80,000 to 84,999 -	1
N.	125,000 to -	1
		115

Business Relocation Needs and Resources

The Partial Route Relocation Alternative will impact 8 businesses. Of these 8 businesses, four are operated from within homes that will be displaced. These businesses consist of a small furniture company based in the family barn; a beauty salon; a septic service company; and a small construction company. Relocation needs will consist primarily of adequate replacement space and allowable zoning variances for the combined residential/business uses. Due to the limited amount of space required by the above, no relocation problems are anticipated for such a reason.

Double D Practice Golf, Mill Street, Agawam

This seasonal facility is owned by Ralph & Frederick D'Amato and encompasses approximately two acres of land off Mill Street, adjacent to the Pioneer Valley Tennis Club. A small wooden structure houses the facility's required equipment and also serves as the cash and refreshment stand during operation. Approximately twenty driving tees are available for use. An open gravel parking area easily accomodates the same number of vehicles.

Relocation would preferrably be on the area's nearest replaceable land particularly in light of the present dual recreational opportunities offered by the driving range and tennis club. This land would ideally be exposed to public view, with reasonable access and parking, and possess an essentially flat surface area.

Stepanik Farms, 85 Twin Oak Road, Agawam

Richard and Alice Stepanik operate their farming business from this secluded location at the end of Twin Oaks Road. The farming is primarily family-based with Mr. & Mrs. Stepanik and their three children working year round with one full-time employee. During the peak farming season, generally April thru October, four to six additional workers are employed on a full time basis. This season requires a seven day work week averaging between sixty to seventy hours a week.

Stepanik Farms owns and utilizes twenty-eight acres along Shoemaker Lane and rents an additional forty acres of land in west Agawam. Lettuce, cabbage and cauliflower are the primary produce raised in these sites.

The impacted property at 85 Twin Oak Road consists of fifteen acres of which approximately seven will be taken under the proposed action. The primary crops raised here are tomatoes and summer squash. Six of these acres are considered as prime farming soil. Situated some 400 feet to the west of the proposed alignment are the Stepanik family home, a four room summer residence, a four car garage, a two car garage, a small storage building, a chicken coop, a barn and a fifty foot glass greenhouse. The summer residence houses the four to six full-time summer employees.

A six hundred and fity foot plastic greenhouse stretches from the main building complex easterly and will be impacted by the proposed action. This greenhouse is considered vital for raising the tomato crop as the small tomato plants are rooted in March and grown until they are ready for replanting outdoors.

Relocation needs include open prime agricultural land with applicable zoning variances to allow for the construction of agriculturally dependent structures. The proximity of replaceable lands will be extremely important in discerning the total relocation needs. Should the distance involved be excessive there would be a need for full relocation.

Chuck's Auto Service, 170 Garden Street, Agawam

Charles Dore owns and operates an auto repair service on this one acre location. The business is run from an all concrete garage about forty by forty-five feet in size. This garage houses three bays each equipped with hydraulic lifts. There are three full-time employees. Land surrounding the garage is utilized as much needed parking area due to the volume of business.

As Mr. Dore's nearby home will also be displaces by the roadway, consideration will have to be given to providing him with a similar residential/business proximity. It is preferable that relocation be in the surrounding area as his clientele is primarily from Agawam. Zoning variances may be required.

The Kimball Companies, 364 South Westfield Street, Agawam

The Kimball Companies' building has recently been vacated by the owner for a more advantageous facility closer to Springfield. This building is currently for sale or lease. The building itself is an

old brick-concrete structure that for years housed the Kimball paper production operation. Access with truck loading areas is provided in both the rear and front of the building.

Relocation Payments

Replacement Housing Payments

In addition to the fair market value, owners of property who have lived in that property for 180 days or more and buy a replacement home within one year may receive an additional payment of up to $15,000 to cover the amount needed to buy a comparable home, the higher cost of a mortgage at current interest rates, and the incidental expenses such as closing costs involved in the purchase of a new home.

If an owner-occupant of at least 180 days chooses to rent replacement housing, he or she is eligible for a replacement housing payment of up to $4,000 towards rental of comparable replacement housing.

An owner-occupant of less than 180 days but at least 90 days is eligible for up to $4,000 towards a downpayment on a replacement home or towards rental of comparable replacement housing.

For renters who have occupied their homes for not less than 90 days, a replacement housing payment of up to $4,000 is payable to cover the difference between the average monthly rental of the old home and the amount determined by the State to be necessary to rent a comparable home for the next four years or towards the downpayment for home purchase.

If relocation cannot be accomplished within the above limits, the Department may develop and implement a program which provides for a higher level of payments. Throughout, residents desiring assistance will be referred to available comparable replacement homes by field agents of the Department, who will maintain files of homes available for sale and rent in the area.

Moving Payments

In addition to the payments just described, payment will also be made for moving expenses. There is no length of residency requirement for receipt of that payment. The payment may be made in two ways:

(1) according to a fixed schedule based on the number of rooms in the acquired dwelling. The maximum payment is $300 plus a dislocation allowance of $200 for a total of $500.

(2) the other method is to reimburse the household for the actual, reasonable cost of the move (carried out by a professional mover) supported by receipted bills.

Appeals

If anyone has been denied a payment or disagrees with an amount computed, he or she should write to the Commissioner, Department of Public Works, who will refer the case to the Hearing Examiner for a decision.

Business Relocation Benefits

Displaced businesses may receive:

1. Full Fair Market Value for business property
2. Actual reasonable moving expenses; assistance in finding relocation site or compensation for time spent in search.
3. Payment in lieu of moving expenses up to $10,000.

Legal Requirements for Housing Availability

Federal law (Uniform Relocation Act of 1970) and regulations of the Federal Highway Administration (FHPM 7-5-1) provide that any highway project that will involve the relocation of families or individuals must assure the following:

> There will be available sufficient,decent, safe, and sanitary homes for sale and rent, adequate to meet the needs of each family to be relocated and within their financial means. In determining whether such housing will be available for relocation, the following criteria are applied:*

- Replacement housing must be decent, safe and sanitary, as defined by Article II, Massachusetts Sanitary Code

- The cost of replacement houses (gross housing costs-mortgage or rent plus heat and utilities) must be within the financial means of households to be relocated.

---

* Under federal law, if sufficient suitable dwellings meeting the above requirements could not be anticipated to become available on the existing housing market, then new housing must be built as necessary to accommodate all relocatees.

- Housing meeting the above standards must be available in locations that are in the same general area, accessible to the relocatee's place of employment, in a neighborhood that is equal to or better than the one in which he or she lives, comparable with regard to public utilities, public and commercial facilities, etc., and adequate to accommodate any special needs.

- Replacement dwellings must be comparable to dwellings to be acquired with respect to number of rooms, area of living space, type of construction, age, and state of repair.

APPENDIX B

PUBLIC PARTICIPATION

COMMENTS

TOWN OF AGAWAM

36 MAIN STREET AGAWAM, MASSACHUSETTS 01001

Tel. 413-786-0400

November 22, 1976

Robert T. Tierny, Chief Engineer,
Massachusetts Department of
Public Works
100 Nashua Street,
Boston, Ma 02114

Dear Mr. Tierney:

I herewith certify, that the Town Council of the Town of Agawam at a regular meeting called for and held on November 15, 1976, VOTED UNANIMOUSLY to file the following resolution:

BE IT RESOLVED:

That the Town Council of the Town of Agawam instruct the Council Clerk to immediately notify the Massachusetts Department of Public Works and the Federal Highway Administration, that it desires and requests of the said Department of Public Works and the Federal Highway Administration to do all things necessary for the prompt completion of construction of the "Route 57 Relocation/Improvements", i.e., a new roadway location from the existing divided highway near Suffield Street (Route 75) in Agawam, to the Provin Mountain area at the Agawam/Southwick line.

That, if any report, study or other documentation is necessary before the proposed construction can be commenced, that both the State and Federal authorities hereinbefore mentioned, immediately request that such reports, studies and documentations be completed and submitted to the appropriate authority or department forthwith.

ATTEST:

Edward A. Caba

Edward A. Caba
Town & Council
Clerk.

COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF PUBLIC WORKS

ENVIRONMENTAL SECTION

ROUTE 57 IMPROVEMENT PROJECT

AGAWAM AND SOUTHWICK

This Sheet is provided for your comments.

Our prime interest at this time is to identify areas of environmental concern. Your assistance is solicited and appreciated.

Please return your sheet to a staff member present here this evening, or mail to:

ROBERT T. TIERNEY, CHIEF ENGINEER
MASSACHUSETTS DEPARTMENT OF PUBLIC WORKS
100 NASHUA STREET, BOSTON, MASSACHUSETTS 02114

I send this letter to once again express for all the people of Agawam who during the past several years have met with me, the most detrimental environmental impact is imposed to not only those thousands using Route 57 each day, but to us who breathe the toxic fumes every day, and the noise level is certainly within legal question right now. I realize my living directly on Route 57 renders somewhat of a bias opinion, but who really knows any better than I, how all these people feel. I anxiously await the day construction begins, but do recognize all the [illegible] work and long hours that have been spent. It is on these people's behalf, I "Thank You".

Use both sides, if necessary

NAME Councilor Donald L. Rheault ADDRESS 536 Hill Street
Feeding Hills, Ma. 01030

TITLE Route 57 Committee ORGANIZATION

DEPARTMENT OF PUBLIC WORKS
OFFICE OF THE COMMISSIONER
RECEIVED JUN 6 1977

John F. Greene,
364 Feeding Hills Rd.,
Southwick, Mass. 01077

June 1

Mr. John Carroll,
Dept. of Public Works,
Hearing Committee,
Boston, Mass.

Dear Mr. Carroll;

I most certainly would appreciate your committee entertaining the following comments relative to the relocation of Route 57 in the town of Agawam and Southwick. In-as-much as it directly affects me and my neighbors, I, and they are deeply concerned about the proposed plan and it's adverse effects.

We have followed each announcement of proposed local hearings with apprehension as to the outcome thereof. Now that June 9 is another scheduled date in the Boston area, it leaves us with a feeling of helplessness in trying to preserve our homes and the adjacent countryside.

The stretch of highway in question is less than two miles and does to be sure pose a nuisance to the residents thereof. Yet nothing can be gained from moving it (nuisance) from their front yard and dumping it in someone elses backhard, destroying farmland,woodland, and wetland in the process.

The attached news item may lead one to believe that this tragedy was caused by density of traffic on the highway in question, when in fact there is just about as much traffic thereon at that hour as there would be leaving St. Mary's church parking lot after 5:30 A. M. mass. In short it makes just about as much sense as DeVinci painting earings on the Madonna.

At one hearing complaints were voiced about heavy trucking in the area. In-as-much as there is a large gravel pit or bank, just off the highway, said noise and nuisance would not be eleminated in the least by the rerouting the highway. Another item of discussion was the volume of traffic thereon resulting in a hazard to the residents. This point is valid particulary if one considers the time element of early morning (7-8 A. M.) and evening (4-5:30 P. M.). Otherwise the traffic on this intra-town highway is no greater than other connecting links between communities of comparable size and geographical location.

over

There is a delay of 10 minutes in driving through evening traffic, as compared with relatively light mid-day movement of vehicles.

So, to this end I would hope that you will exercise judcial concern for all parties involved, particulary that facet having to do with destroying forever the countryside on the west perimeter of Agawam where it adjoins the town of Southwick. God knows the "powers that be" in the town of Agawam have indeed butchered the inner community. Please contain it's asphalt hide, dont let it extend into farm and residential areas of both communities.

Sincerely,

John F. Greene

COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF PUBLIC WORKS

ENVIRONMENTAL SECTION

ROUTE 57 IMPROVEMENT PROJECT

AGAWAM AND SOUTHWICK

This Sheet is provided for your comments.

Our prime interest at this time is to identify areas of environmental concern. Your assistance is solicited and appreciated.

Please return your sheet to a staff member present here this evening, or mail to:

ROBERT T. TIERNEY, CHIEF ENGINEER
MASSACHUSETTS DEPARTMENT OF PUBLIC WORKS
100 NASHUA STREET, BOSTON, MASSACHUSETTS 02114

Three years Ago I directed a letter to Mr Tierney stating reasons for re-locating Rte 57. I took Copies to Mr Connelly & Mr Stetsky with representatives of Agawam signed petitions to start this project. We are told to put pressure on your Department to start this project. What more can we do to convince you that the Town of Agawam wants a safer route. Since the last meeting in 1974 there have been at least 5 or six very serious accidents in my vicinity since I described to you in the last letter. Please get this project going without too much more delay.

Sincerely

Use both sides, if necessary

NAME Florence E Bazak ADDRESS 710 Mill St Indian Orchard

TITLE State Resident on Rte 57 ORGANIZATION

COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF PUBLIC WORKS

ENVIRONMENTAL SECTION

RECEIVED
OCT 31 1977
BY H.W. LOCHNER, INC.

ROUTE 57 IMPROVEMENT PROJECT

AGAWAM AND SOUTHWICK

This Sheet is provided for your comments.

Our prime interest at this time is to identify areas of environmental concern. Your assistance is solicited and appreciated.

Please return your sheet to a staff member present here this evening, or mail to:

ROBERT T. TIERNEY, CHIEF ENGINEER
MASSACHUSETTS DEPARTMENT OF PUBLIC WORKS
100 NASHUA STREET, BOSTON, MASSACHUSETTS 02114

October 28, 1977

I am joint owner of the Spear Farm property at 335 South West Street, Feeding Hills, Mass. a property under consideration for your new Route 57. You ask for comments of environme concern and therefor I respond.

Our ability to get into our West property located on the west side of the South West Street is over a small bridge at the neck of the Leonard Pond, between the major pond and its source pond (ours). Any water or wetland change upset as a result of wetland disturbance further north in the property could cause us tremendous problems for us on this considerable acreage.

This property has been in our family for many generations. We have abused neither the land, nor the water, nor the air and it is environmentally pure. Sentimental? Perhaps, but true. To slice through the middle of the properties simply because the land has not been developed and is free of incumbrances seems an abuse to me.

Use both sides, if necessa

NAME Virginia Spear Finley ADDRESS 116 Stebbins Road, Somers, Ct. 0

TITLE Property Owner ORGANIZATION

COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF PUBLIC WORKS

ENVIRONMENTAL SECTION

RECEIVED
OCT
BY H. W. LOCH... INC.

ROUTE 57 IMPROVEMENT PROJECT

AGAWAM AND SOUTHWICK

his Sheet is provided for your comments.

ur prime interest at this time is to identify areas of environmental oncern. Your assistance is solicited and appreciated.

lease return your sheet to a staff member present here this evening, r mail to:

ROBERT T. TIERNEY, CHIEF ENGINEER
MASSACHUSETTS DEPARTMENT OF PUBLIC WORKS
100 NASHUA STREET, BOSTON, MASSACHUSETTS 02114

Dear Mr. Tierney,

With regard to the proposed extension of limited access highway, Route 57, the proposed extension will go through our farm land. The taking of our house or other property would not affect us nearly as much as the taking of our farm land. Our house and other business property could be relocated, but please tell us how do you relocate a farm? You can't pick it up and put it somewhere else.

East of our farm is a wooded area part of which is owned by us and which has no farming value to us. It seems to us that it would be possible to relocate the highway through this area.

We have farmed all of our lives in Feeding Hills. During the farming season about 10 to 12 people are employed at our farm. We can't relocate our farm to any nearby land since as farmers we can't compete with local housing developers for high-priced land.

Futhurmore, the proposed highway extension will not in our opinion, solve the traffic problem while it will create many hardships to area residents.

We would appreciate your attention to this matter and are awaiting your reply.

Thank you.

Yours truly,
Mr. + Mrs. Richard Stepanik
Owners of Stepanik Farms (1961)

Use both sides, if necessary

NAME Mr. + Mrs. Richard Stepanik ADDRESS 85 Twin Oaks Road

TITLE owners ORGANIZATION Stepanik Farm

Also, it's foolish to put a 4-lane highway
and then suddenly go to 2 lanes. Why
not have just 2 lanes, like it is
now from Suffield St. to the high school

COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF PUBLIC WORKS

ENVIRONMENTAL SECTION

ROUTE 57 IMPROVEMENT PROJECT

AGAWAM AND SOUTHWICK

This Sheet is provided for your comments.

Our prime interest at this time is to identify areas of environmental concern. Your assistance is solicited and appreciated.

Please return your sheet to a staff member present here this evening, or mail to:

ROBERT T. TIERNEY, CHIEF ENGINEER
MASSACHUSETTS DEPARTMENT OF PUBLIC WORKS
100 NASHUA STREET, BOSTON, MASSACHUSETTS 02114

I'm a resident of Mill St (Rt 57) I strongly urge that the project be accelerated to relieve the air noise and pollution on the street. This is secondary to my concern of safety for my family from the ever increasing traffic.

At the meeting tonight it was mentioned that there would be a 10' culvert at Still Brook and the others would be only 54". Do a list of culvert locations available. Several organizations of Snowmobile - Trailriders - Horseback - and Hikers are concerned that the southern half of Agawam

Use both sides, if necessary

NAME JAMES E GRIFFIN ADDRESS 673 Mill St Feeding Hills MA 01030

TITLE _____ ORGANIZATION _____

would be rendered inaccessable by this highway. If consideration is not present then I would recommend some thought in this area.

Please don't let this extension be dragged out another 8 years.

Thank You for intrest in my comments

James E Griffin

COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF PUBLIC WORKS

ENVIRONMENTAL SECTION

ROUTE 57 IMPROVEMENT PROJECT

AGAWAM AND SOUTHWICK

This Sheet is provided for your comments.

Our prime interest at this time is to identify areas of environmental concern. Your assistance is solicited and appreciated.

Please return your sheet to a staff member present here this evening, or mail to:

ROBERT T. TIERNEY, CHIEF ENGINEER
MASSACHUSETTS DEPARTMENT OF PUBLIC WORKS
100 NASHUA STREET, BOSTON, MASSACHUSETTS 02114

I am against building a southerly bypass route for Rte 57. You are making the existing Rte 57 safer by building a southerly by pass but you will be creating a safety hazard on South Westfield Street where more than 50-100 children walk along South Westfield St. to Granger School and the Jr. High each day.

It would make more sense to repair and alleviate the hazardous conditions on the present Rte. 57. by installing more signal and walk lights, improving intersections with bypasses at Feeding Hills Ctr., Sacred Heart Church, South West St. etc. The present road could be widened where possible to carry more traffic at peak periods during morning hours and late afternoons when people are going and coming from work.

We talk about making a safer road when in many cases it is the parent's responsibility to see that their children practice good safety rules.

I can sympathize with the people on Rte 57 who own property, but it seems we will be creating safety hazards elsewhere with the proposed southerly route. (over)

Use both sides, if necessary

NAME Fred J. Montesi ADDRESS 12 Hendom Dr. Feeding Hills

TITLE Teacher - Granger School ORGANIZATION Agawam Public Schools

It also appears that by the time the proposed southerly route is constructed, more houses and businesses will have built in the proposed land and more people will be inconvenienced in moving their homes and businesses.

Eight years ago when talk was first begun about building a southerly route the price for constructing this bypass was high enough. Now, it is much more - $11,000,000 and by the time it will be under way that above figure will look small in comparison to $11 million.

It is an awful lot of $ for what it would have cost 8 years ago.

That money could be better spent fixing what we now have. It would be interesting to have the people of Agawam vote on what their feelings are towards constructing a new roadway. I think you would find more people against relocation of Rte. 57 because more people have constructed homes in or near where it will be located.

COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF PUBLIC WORKS

ENVIRONMENTAL SECTION

ROUTE 57 IMPROVEMENT PROJECT

AGAWAM AND SOUTHWICK

This Sheet is provided for your comments.

Our prime interest at this time is to identify areas of environmental concern. Your assistance is solicited and appreciated.

Please return your sheet to a staff member present here this evening, or mail to:

ROBERT T. TIERNEY, CHIEF ENGINEER
MASSACHUSETTS DEPARTMENT OF PUBLIC WORKS
100 NASHUA STREET, BOSTON, MASSACHUSETTS 02114

Dear Mr. Tierney.

I am writing because I am concerned with the Environment around Leonards Pond. That is the area where route 57 would cross South West St. In the swamps around this pond is where the Does have their fawns each spring. The wood Duck population is the biggest of any place in Mass. In some area's there are No wood Ducks. Bird watchers study the birds with powerfull Binoculars, both from cars and on foot.

All of this means, that Sportsmen, Bird watchers and Environmentalists will be writing to Washington asking that funds for this road be held up. You have an alternate route which is better and safer. Any curve on the road is dangerous because of the speed at which people travel on these roads. would

I would appreciate it if you give this matter your prompt attention.

Sincerely

Use both sides, if necessary

NAME William A. Spear ADDRESS 292 S. West St.

TITLE None ORGANIZATION None.

7523

One of thirty-five signed form letters received:

February 5, 1977

Robert Tierney, Chief Engineer
State Department of Public Works
100 Nashua St.
Boston, MA

Dear Mr. Tierney:

I am writing to express serious concern with the long delays of Route 57 in Agawam. I feel the time is long overdue that Route 57 "Relocation/Improvements" become a reality.

I urge you to give prompt action and serious consideration to the Resolution, unanimously passed by our Agawam Town Council, as presented by Councilor Rheault recently:

That being; "that a new roadway location from the existing divided highway near Suffield St. (Rte 75) in Agawam, to the Provin Mountain area at the Agawam/Southwick line", be completed forthwith.

Thank you,

Mr. + Mrs. Robert J. Quadrato
374 Poplar St.
Feeding Hills, Mass.

COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF PUBLIC WORKS

ENVIRONMENTAL SECTION

ROUTE 57 IMPROVEMENT PROJECT

AGAWAM AND SOUTHWICK

This Sheet is provided for your comments.

Our prime interest at this time is to identify areas of environmental concern. Your assistance is solicited and appreciated.

Please return your sheet to a staff member present here this evening, or mail to:

ROBERT T. TIERNEY, CHIEF ENGINEER
MASSACHUSETTS DEPARTMENT OF PUBLIC WORKS
100 NASHUA STREET, BOSTON, MASSACHUSETTS 02114

I was present at the meeting and did not speak out ... Just listened. There were other neighbors present that did the same. We were the ones with the unhappy faces. We were just in attendance to find out more information about the proposed highway. We just happen to be the unfortunate ones that live directly on the proposed path. I would naturally like to go on record as being opposed to the new highway. I will be directly in the path in two locations. One is my home and office @ 315 So. Westfield St. Feeding Hills and the other location is my business and yard operation of the AGAWAM SEPTIC TANK Co. on Harden St. Feeding Hills. I must add that my "roots" run deep in both locations and am not too happy about the present situation especially not knowing from one day to the next whether or not I will be wiped out by the new highway. It's not a very comfortable position to be in, especially with everything "up in the air" as it stands now. We would want to buy this property if I were to sell? We are unfortunate in a kind and this property and real estate has a poor market value with the present unpredictable situation. I am sure that you yourself would not like it to be in

Use both sides, if necessary. ↘

NAME SAM DI DONATO ADDRESS 315 South Westfield St.

TITLE TAX PAYER !!! ORGANIZATION DI DIL DONATO

the same "environment" we are in as owners of real estate in the proposed path of Rte 57. We are surely not in an enviable position at this time and these meetings on the matter do not shed a bit of light (in my opinion). The suggestion I would like to make at this time is that the funds and efforts on this project be concentrated in the area of improving on the present Rte 57 which needs it regardless of whether or not we get a new highway.

Of course everyone appreciates new things — and new highways. I'd like to have new things also — a new car — a new house — a new truck — etc but cannot afford them — Can we afford a new highway? I suggest we be realistic and stop this wild spending all the way around and stop putting pressure on everyone and make the best out of what we got

I thank you for taking the time to read this for whatever it's worth ..... I remain gratefully and

Sincerely yours,

Saul's Mobile Home

D/B/A ACADIAN SEPTIC

315 South Westfield

Feeding Hills, Mass

COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF PUBLIC WORKS

ENVIRONMENTAL SECTION

ROUTE 57 IMPROVEMENT PROJECT

AGAWAM AND SOUTHWICK

This Sheet is provided for your comments.

Our prime interest at this time is to identify areas of environmental concern. Your assistance is solicited and appreciated.

Please return your sheet to a staff member present here this evening, or mail to:

ROBERT T. TIERNEY, CHIEF ENGINEER
MASSACHUSETTS DEPARTMENT OF PUBLIC WORKS
100 NASHUA STREET, BOSTON, MASSACHUSETTS 02114

It seems to us this project has been delayed long enough. Its discouraging to have such a thing like this go on. Mill Street is a menace for anyone to live on. We as voters certainly think some extreme power should be taken to complete this project. Soon!

537 Mill St.

Use both sides, if necessary

NAME Mr. & Mrs. Ralph B. Brewer

ADDRESS [redacted] Feeding Hills, Mass 01030

TITLE (over)

ORGANIZATION

If all the meetings in the future end up this way we certainly won't attend any more of them.

ENVIRONMENTAL
OCT 27 1976
RECEIVED

COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF PUBLIC WORKS

ENVIRONMENTAL SECTION

ROUTE 57 IMPROVEMENT PROJECT

AGAWAM AND SOUTHWICK

This Sheet is provided for your comments.

Our prime interest at this time is to identify areas of environmental concern. Your assistance is solicited and appreciated.

Please return your sheet to a staff member present here this evening, or mail to:

ROBERT T. TIERNEY, CHIEF ENGINEER
MASSACHUSETTS DEPARTMENT OF PUBLIC WORKS
100 NASHUA STREET, BOSTON, MASSACHUSETTS 02114

We, the undersigned, respectfully suggest that the re-location of Route 57 be at least 300 feet from the property lines of the homes located on Old Mill Road, and Holland Drive.

There would appear to be no reason why this could not be done, since there is open land without any physical obstacles in the path of road construction, thus the tranquility of this residential area would be maintained.

We, the residents of this area, are also concerned about the noise level and air pollution if construction of Route 57 is re-located close to this residential area.

Thank you for your consideration of this request.

Daniel Bellace	46 Old Mill Rd Agawam
Gayle M. Bellace	46 Old Mill Rd - "
Christa J. Nicosia Jr	36 Old Mill Rd Agawam
Barbara M. Nicosia	36 Old Mill Rd. Agawam
Jeanette Bailey	45 Holland Dr. Agawam
Warren Bailey	45 Holland Dr Agawam
James Linden	45 Holland Dr. Agawam
Edith B. Bailey	37 Holland Dr. Agawam
Lawrence D. Bailey	37 Holland Drive Agawam

Use both sides, if necessary

NAME _____ ADDRESS _____

TITLE _____ ORGANIZATION _____

Mrs. Gladys Bailey	37 Holland Drive Agawam
Carole A DiSimato	25 Holland Dr. Agawam
Richard J. Conlon	25 Old Mill Rd.
Margaret J. Conlon	25 Old Mill Rd.